IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

ONE-E-WAY, INC., Plaintiff, v. DELL TECHNOLOGIES INC. and DELL INC., *Defendants.*	CIVIL ACTION NO. 1:24-cv-01558-RP (LEAD) **JURY TRIAL DEMANDED**
ONE-E-WAY, INC., Plaintiff, v. ANKER INNOVATIONS, LTD., *Defendant.*	CIVIL ACTION NO. 1:24-cv-01559-RP **JURY TRIAL DEMANDED**
ONE-E-WAY, INC., Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD, and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants.*	CIVIL ACTION NO. 1:24-cv-01561-RP **JURY TRIAL DEMANDED**

PLAINTIFF'S FIRST AMENDED COMPLAINT AGAINST
DELL TECHNOLOGIES INC. AND DELL INC.

Plaintiff One-E-Way, Inc. ("One-E-Way" or "Plaintiff") hereby files its First Amended Complaint against Defendants Dell Technologies Inc. and Dell Inc. (collectively, "Dell" or "Defendants") alleging infringement of U.S. Patent Nos. 10,129,627; 10,468,047; and 9,107,000

(collectively the "Patents-in-Suit").

I. PARTIES

1. Plaintiff One-E-Way, Inc. is a Delaware corporation that, as of the date of this Complaint, has its principal place of business at 3016 E. Colorado Blvd. STE 70848, Pasadena, California 91107.

2. Upon information and belief, Defendant Dell Technologies Inc. is a Delaware corporation with its principal place of business located at 1 Dell Way, Round Rock, Texas 78664. Dell Technologies Inc. may be served through its registered agent Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808.

3. Upon information and belief, Defendant Dell Inc. is a Delaware corporation with its principal place of business located at 1 Dell Way, Round Rock, Texas 78664. On information and belief, Dell Inc. is a wholly-owned subsidiary of Dell Technologies Inc. Dell Inc. is registered to do business in the State of Texas and may be served through its registered agent Corporation Service Company D/B/A+, 211 E. 7th Street, Suite 620, Austin, Texas 78701.

II. JURISDICTION AND VENUE

4. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular 35 U.S.C. §§ 271, 281, 284 and 285. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §1331, §1338(a).

5. This Court has personal jurisdiction over Dell. Among other reasons, Dell maintains regular and established places of business in Texas, including its global headquarters in the Austin area, in Round Rock, Texas. Dell conducts substantial business in Texas and has established minimum contacts within the forum such that the exercise of jurisdiction over Dell will not offend traditional notions of fair play and substantial justice. Dell has purposefully and

voluntarily availed itself of the privileges of conducting business in the United States, the State of Texas, and this District by continuously and systematically placing goods into the stream of commerce through an established distribution channel with the expectation that they will be purchased by consumers in the State of Texas and this District. Dell directly and/or through intermediaries (including distributors, sales agents, and others), ships, distributes, sells, offers to sell, imports, advertises, makes, and/or uses its products (including but not limited to the products accused of infringement herein) in the United States, the State of Texas, and this District. Finally, Dell has participated in many lawsuits in courts within the State of Texas, including this Court. As such, it has long been established that Dell is subject to personal jurisdiction in Texas. One-E-Way's causes of action arise from Dell's contacts with and other activities in the State of Texas and this District.

6. Venue is proper in this Court pursuant to 28 U.S.C. §§1391(b), (c), and 1400. Dell maintains regular and established places of business within this district.

III. FACTUAL BACKGROUND

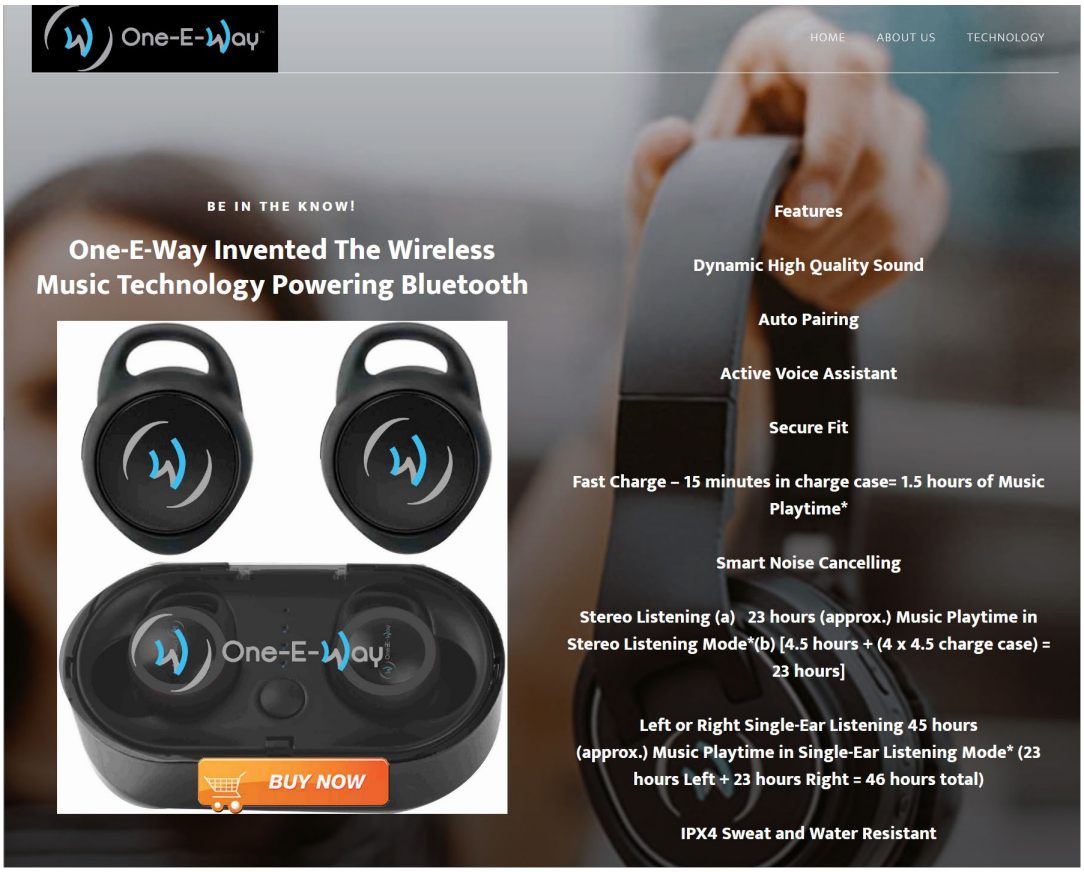
ONE-E-WAY AND THE INVENTOR

7. C. Earl Woolfork first conceived of the wireless audio inventions underlying the Patents-in-Suit in the late 1990s while he was exercising outdoors at the popular Santa Monica Steps in Los Angeles. At that time, Mr. Woolfork observed many people having their exercise routines interrupted or negatively affected by the wire(s) connecting their headphones to their respective portable audio players: "I'd see people going up and down exercising, and the cord was not only a nuisance but it was also potentially dangerous," Mr. Woolfork explained.[1] Determined

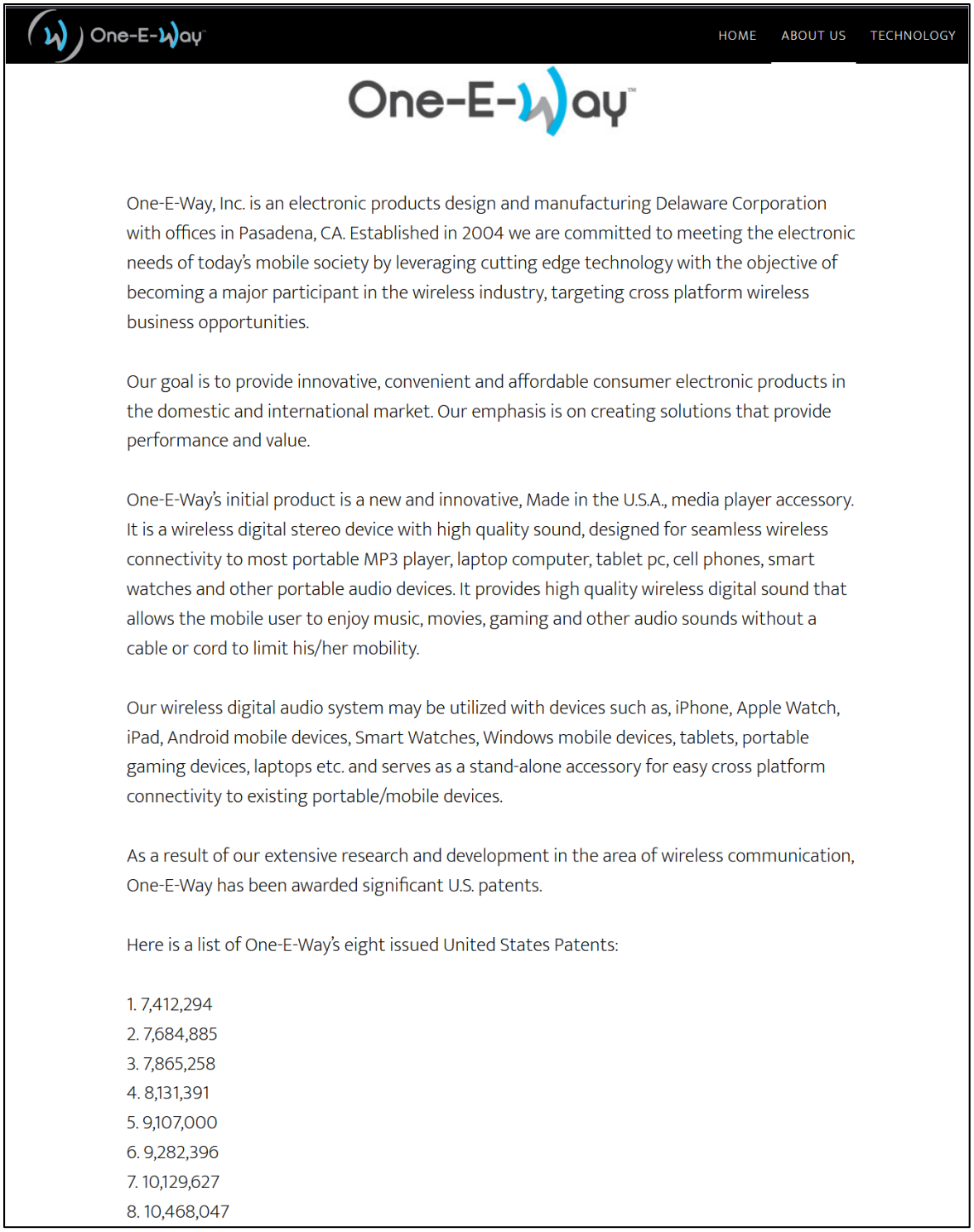
[1] *Earl and Cedric Woolfork: CEO And CFO of One-E-Way,* US INVENTOR, https://usinventor.org/portfolio-items/earl-and-cedric-woolfork-ceo-and-cfo-of-one-e-way/ (last visited Nov. 14, 2024).

to address these issues, Mr. Woolfork sought to develop a "wireless" solution that would enable people to enjoy high quality music on-the-go and be free of the complications and frustrations of headphones wire(s). Ultimately, Mr. Woolfork—who had an electrical engineering degree from the University of Southern California in Los Angeles—designed a wireless audio system that could transmit and receive high quality audio data without the physical complications caused by the conventional use of wires to transmit the audio signals. Mr. Woolfork then filed a patent application with the United States Patent and Trademark Office to protect his inventions and ultimately obtained several U.S. patents on various embodiments of his invention(s).

8. Subsequently, in 2004, Mr. Woolfork founded One-E-Way—a small, minority-owned business—in Pasadena, California to commercialize his inventions and One-E-Way also serves as the assignee of Mr. Woolfork's patents. One-E-Way maintains a website at http://one-e-way.com/.



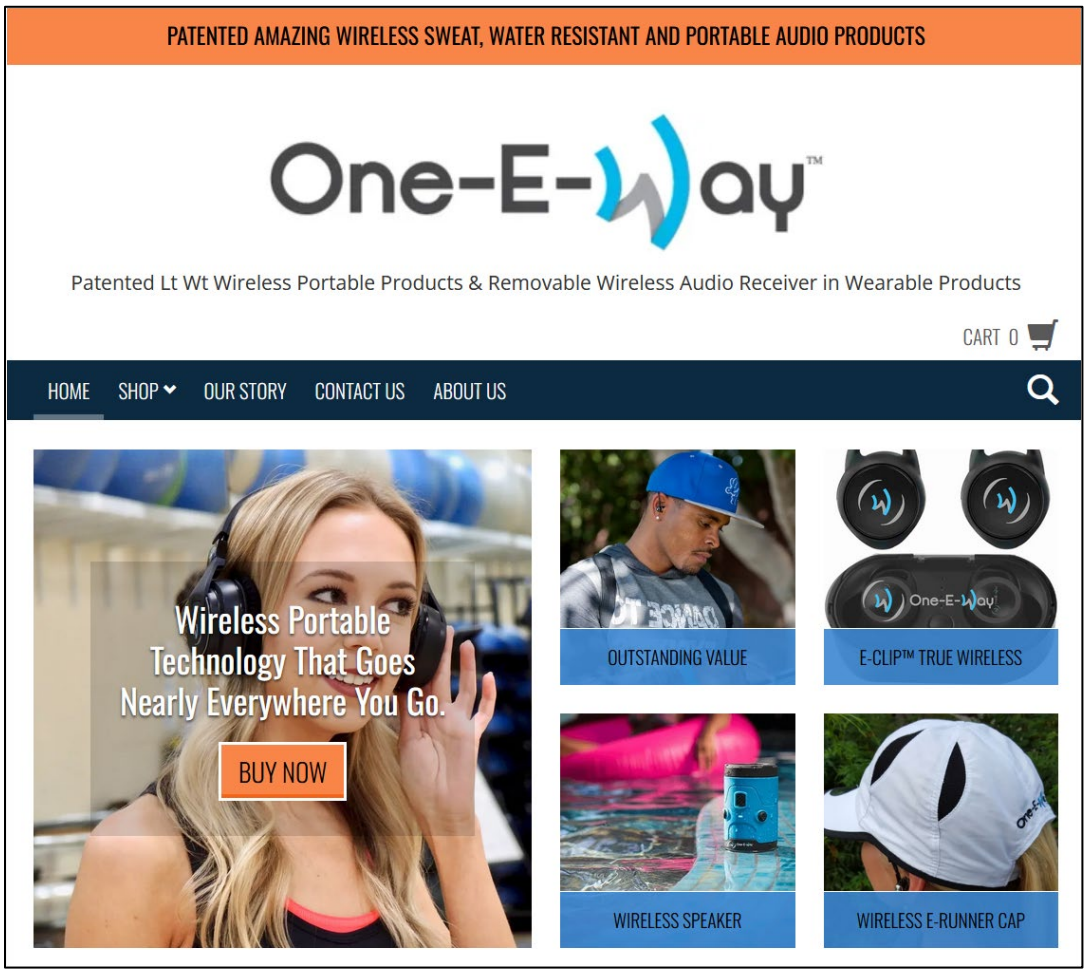
http://one-e-way.com/.



http://one-e-way.com/about-us/.

9. One-E-Way's initial commercial product was a wireless digital audio accessory designed to easily connect with a variety of portable audio devices—e.g., MP3 players, laptops,

tablets, and smartphones—to deliver high-quality, wireless audio for users to enjoy their music, movies, games, and more. One-E-Way sells its patented wireless audio products at least through its online retail outlet https://shop.wayvz.com/.



https://shop.wayvz.com/.

PATENTS-IN-SUIT

10. One-E-Way is the owner of all right, title, and interest in and to U.S. Patent No. 9,107,000, entitled "Wireless Digital Audio Music System," (the "'000 Patent") with a claim of priority to December 21, 2001. The '000 Patent duly and legally issued on August 11, 2015.

11. One-E-Way is the owner of all right, title, and interest in and to U.S. Patent No. 10,129,627, entitled "Wireless Digital Audio Music System," (the "'627 Patent") with a claim of priority to December 21, 2001. The '627 Patent duly and legally issued on November 13, 2018.

12. One-E-Way is the owner of all right, title, and interest in and to U.S. Patent No. 10,468,047, entitled "Wireless Digital Audio Music System," (the "'047 Patent") with a claim of priority to December 21, 2001. The '047 Patent duly and legally issued on November 5, 2019.

13. The Patents-in-Suit are members of the same patent family and each claims priority to the parent patent application in the family—U.S. Patent Application No. 10/027,391, which was filed on December 21, 2001.

14. The Patents-in-Suit have expired. The "Period of Exclusivity" runs from the period of enforceability until the latest expiration of the Patents-in-Suit.

PRIOR LITIGATION AND ENFORCEMENT

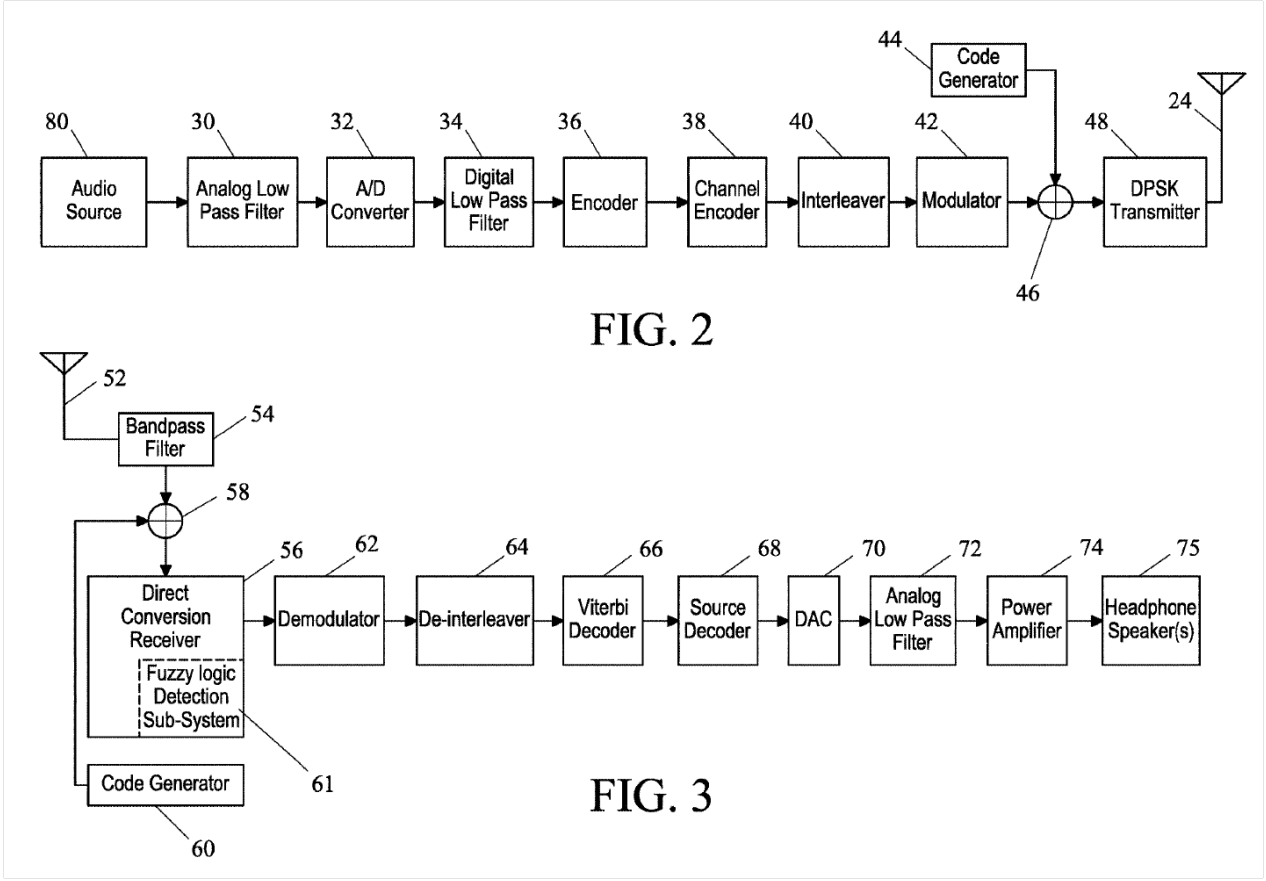
15. One-E-Way has successfully enforced its patents in multiple venues against multiple companies over the years, including overcoming multiple IPRs and validity challenges.

16. On July 16, 2020, One-E-Way filed a patent infringement lawsuit against Apple Inc. asserting that Apple Inc. infringed two of the three patents currently asserted against Defendants ("Apple litigation"). In the Apple litigation, among other allegations, One-E-Way asserted that the Channel Access Code ("CAC") and the Logical Transport Address ("LT_ADDR") parameters used by certain portions of the Bluetooth specification qualified as the "unique user code" claimed in One-E-Way's asserted patents. Ultimately, the Apple litigation ended after the district court held, and the Federal Circuit affirmed, that the CAC and LT_ADDR parameters accused by One-E-Way did not infringe the claimed unique user code.

TECHNICAL OVERVIEW

17. The Patents-in-Suit are generally directed to wireless audio inventions that reduce or eliminate the conventional reliance on physical cables to transmit audio signals, and the problems associated with such cables, while still providing high quality, private listening for users and reducing interference from other device transmissions. For example, the specification of the Patents-in-Suit describes that code division multiple access technology ("CDMA") "may be used to provide each user independent audible enjoyment." *See* '627 Patent, 3:30-32. Further, the patented inventions address interference in the wireless audio spectrum by using, for example, differential phase shift keying and processing for reduction of intersymbol interference. *See, e.g., id.*, 2:55-60; 5:7-8.

18. Figures 2 and 3 of the Patents-in-Suit depict the audio transmitter and audio receiver portions, respectively, of select embodiments of the claimed wireless digital audio systems.



'047 Patent, FIGS. 2-3.

19. In one embodiment, the Patents-in-Suit describe the use of "a code generator 44 that may be used to create a unique user code" and the generated "unique user code" is associated with one wireless digital audio system user. *See* '627 Patent, 2:65-3:1. In one embodiment of the receiver portion, "[t]he receiver code generator 60 may contain the same unique wireless transmission of a signal code word that was transmitted by audio transmitter 20 specific to a particular user." *See id.*, 3:23-26.

DEFENDANTS' ACTS

20. Dell has manufactured, used, sold, offered to sell, and imported into the United States a variety of wireless audio products that provide wireless transmission and/or reception of

an audio signal in compliance with versions of the Bluetooth and/or Wi-Fi Direct[2] standards from the Bluetooth Special Interest Group ("Bluetooth SIG")[3] and Wi-Fi Alliance[4] respectively, and that infringe the Patents-in-Suit.

21. During the Period of Exclusivity, Dell manufactured, used, sold, offered to sell, and imported into the United States portable, mobile, and other wireless audio products that receive a wireless audio signal in accordance with a Bluetooth standard or 802.11/Wi-Fi Direct standard, e.g., Bluetooth 5.0 or Wi-Fi Direct v1.5, (the "Accused Receiver Products"), including, but not limited to:

- Wireless headphones, including under the brands Dell, Alienware, and Bose;
- Wireless speakers, including Bluetooth speakers branded Bose, Logitech, and Dell;
- Wireless monitors supporting screencast or screen mirror, including Dell's S2317HWI monitor;
- Laptops and tablets with a Windows 10 operating system; and
- Projectors, including those branded as Epson and LG.

The Accused Receiver Products meet all claim limitations of at least claim 1 of the '047 Patent, at least claim 1 of the '627 Patent, and at least claim 9 of the '000 Patent. Dell's manufacture, use, sale, offer for sale, and importation into the United States of the Accused Receiver Products infringed at least claim 1 of the '047 Patent, at least claim 1 of the '627 Patent, and at least claim 9 of the '000 Patent.

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[2] Wi-Fi Direct is also known as Wi-Fi Peer-to-Peer ("P2P").

[3] Dell Electronics Co., Ltd. is an "Associate" member of Bluetooth SIG and Dell Electronics America, Inc. is an "Adopter" member of Bluetooth SIG. *See* https://www.bluetooth.com/develop-with-bluetooth/join/member-directory/. Bluetooth SIG is the organization that oversees the development of Bluetooth standards.

[4] Dell Technologies Inc.is a "Sponsor" of the Wi-Fi Alliance. *See* https://www.wi-fi.org/member-companies. The Wi-Fi Alliance is the organization that oversees the development of Wi-Fi standards.

22. The Accused Receiver Products include Bluetooth-compatible products that comprise a portable, mobile, or other digital audio spread spectrum audio receiver.

23. The receivers of the Accused Receiver Products receive a unique user code, e.g., BD_ADDR and unique user-friendly name ("UFN"), from a digital audio spread spectrum transmitter during, e.g., device discovery, pairing, and/or audio streaming.

3.2.2 Bluetooth Device Name (the user-friendly name)

3.2.2.1 ***Definition***

> The Bluetooth device name is the user-friendly name that a Bluetooth device exposes to remote devices. For a device supporting the BR/EDR device type, the name is a character string returned in the LMP_name_res in response to an LMP_name_req. For a device supporting the LE-only device type, the name is a character string held in the Device Name characteristic as defined in Section 12.1.

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 3, Part C, Section 3.2.2, p. 1988, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/; *see also id.*, Section 6, pp. 2022-30; Section 7.1-7.7, pp. 2031-38 (discussing protocols for obtaining the BD_ADDR and UFN); Vol. 2, Part E, Section 6.23, p. 749 ("The user-friendly Local Name provides the user the ability to distinguish one BR/EDR Controller from another."); *id.*, Part B, Section 1.2.1, p. 357 (discussing a "user BD_ADDR"). For example, a unique user code is sent by the transmitter in response to the "Remote_Name_Request" command.

7.1.19 Remote Name Request Command

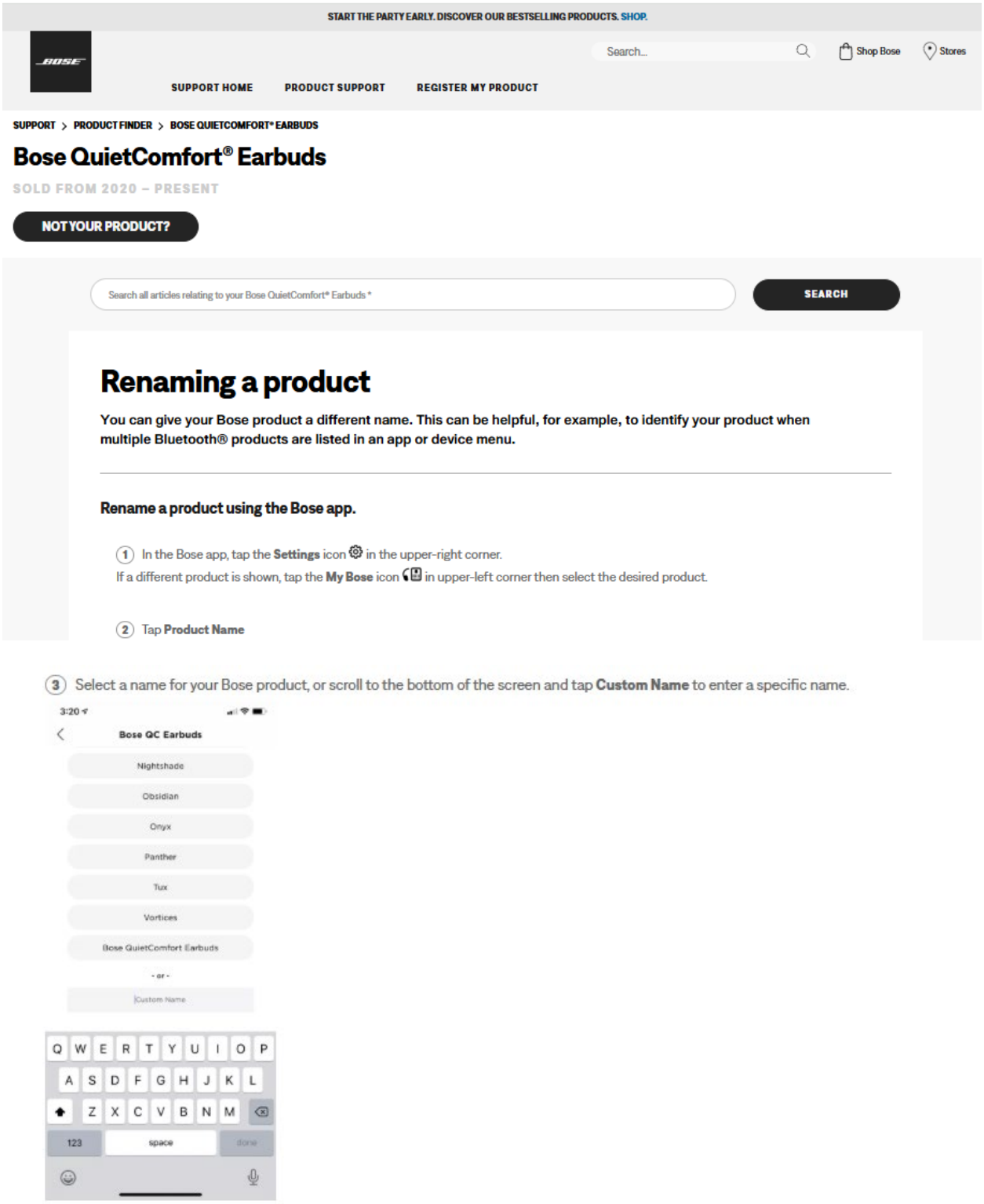
Command	OCF	Command Parameters	Return Parameters
HCI_Remote_Name_Request	0x0019	BD_ADDR, Page_Scan_Repetition_Mode, Reserved, Clock_Offset	

Description:

The Remote_Name_Request command is used to obtain the user-friendly name of another BR/EDR Controller. The user-friendly name is used to enable the user to distinguish one BR/EDR Controller from another. The BD_ADDR command parameter is used to identify the device for which the user-friendly name is to be obtained. The Page_Scan_Repetition_Mode parameter specifies the page scan repetition mode supported by the remote device with the BD_ADDR. This is the information that was acquired during the inquiry process. The Clock Offset parameter is the difference between its own clock

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 2, Part E, Section 7.1.19, p. 800, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

24. Users of a Bluetooth-compatible transmitter and of Accused Receiver Products could personalize or customize the UFN of the Bluetooth-compatible device using a proprietary interface, for example as shown below in the context of a Dell wireless headset, the Dell Pro WL5022, introduced in 2021. https://www.techforbrains.com/headphones/dell-pro-wl5022-wireless-headset-with-zoom-and-microsoft-teams-certified/ Another example is Bose Quietcomfort 35 II, offered for sale by Dell in 2021. https://www.audiosciencereview.com/forum/index.php?threads/bose-quietcomfort-35-ii-review-noise-cancelling-headphone.20584/; https://www.dell.com/community/en/conversations/xps/wont-connect-with-bose-headphones-via-bluetooth/647f7ec1f4ccf8a8ded3471d; https://web.archive.org/web/20210501000000*/dell.com



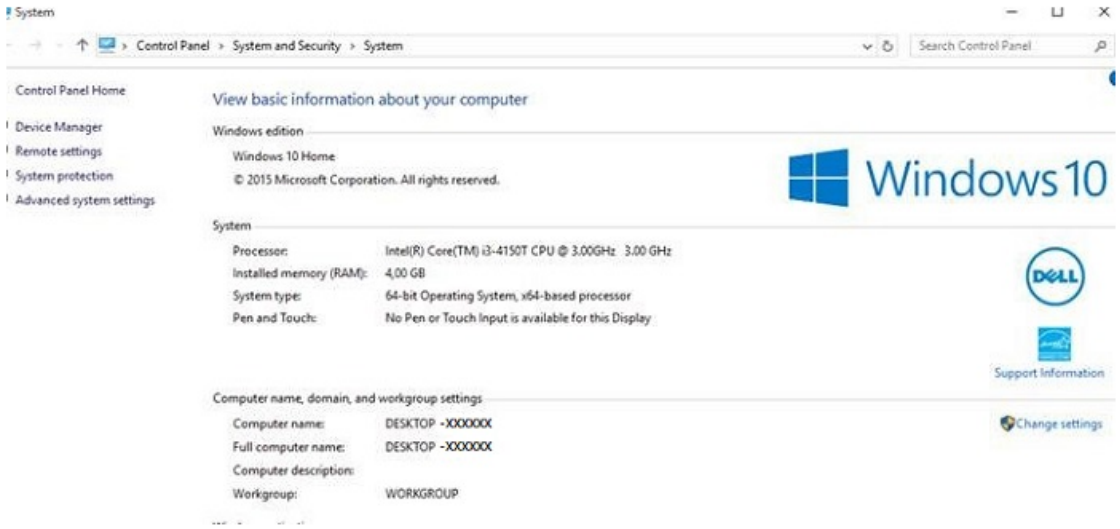
https://www.boselatam.com/en_ar/support/articles/HC1478/productCodes/qc_earbuds/article.html.

Computer Name Shows as Desktop-XXXXXX on Dell Systems that Ship with Windows 10

Summary: Steps for changing the Computer Name on a Dell system if it shows Desktop-XXXXXX.

Computer Name Shows Desktop-XXXXXX

You may notice that your Windows 10 system has a computer name "Desktop-XXXXXX" on both desktop and portable systems. (XXXXXX = any combination of 7 letters or numbers).



How to Change the Computer Name

You have several options that will allow you to change the computer name of a Windows 10 system.

From the Start menu

1. Click/Tap **Settings** on the **Start** menu, The **Settings Window** will open.
2. Click/Tap the **System** icon, (top left).
3. Click/Tap **About** at the bottom of the left side menu.
4. Then Click/Tap the **Rename PC** button
5. In the **Rename your PC Window**, type in the new name in the box then Click/Tap **Next** and Click/Tap the **Restart Now** button.

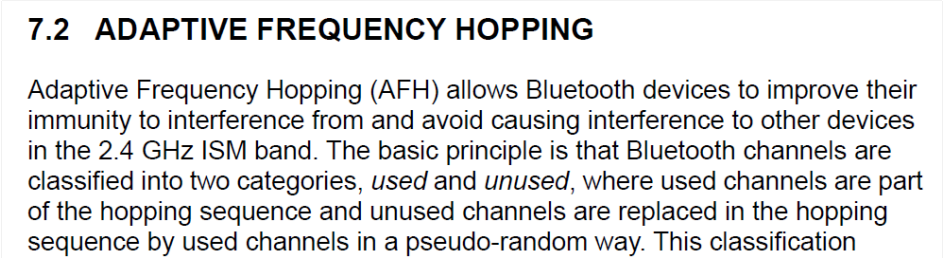
https://web.archive.org/web/20220617032523/https://www.dell.com/support/kbdoc/en-us/000137111/computer-name-shows-as-desktop-xxxxxx-on-dell-systems-that-ship-with-windows-10 (last published date February 21, 2021).

25. Bose also provided an app that can be used to implement the renaming process. *See, e.g.,* https://support.bose.com/s/display-articles?productId=01t8c00000OydNXAAZ&articleId=ka08c000000hHX6AAM&language=en_CA.

26. The digital audio spread spectrum receivers of the Accused Receiver Products also receive a high-quality audio signal representation with a frequency range of 20 Hz to 20 kHz (e.g., the range of sound frequencies that the average human can hear high-quality music) from another Bluetooth-compatible device with a digital audio spread spectrum transmitter.

27. Further, the receivers of the Accused Receiver Products are able to communicate wirelessly with digital audio spread spectrum transmitters and receive audio signal representations representative of audio from an audio source, e.g., music streamed from a Bluetooth-compatible smartphone to an Accused Receiver Product via a Bluetooth connection between the two devices.

28. The digital audio spread spectrum receivers of the Accused Receiver Products include direct conversion modules that can receive wireless spread spectrum signal transmissions representative of the unique user code and the high-quality audio signal representation. For example, on information and belief, all later Bluetooth-compatible devices include a direct conversion module comprising down conversion circuity. Additionally, the received transmissions are encoded for further noise immunity. For example, the received transmissions can be encoded using various spread spectrum techniques to avoid interference, one such spread spectrum technique used is adaptive frequency hopping ("AFH"):



7.2 ADAPTIVE FREQUENCY HOPPING

Adaptive Frequency Hopping (AFH) allows Bluetooth devices to improve their immunity to interference from and avoid causing interference to other devices in the 2.4 GHz ISM band. The basic principle is that Bluetooth channels are classified into two categories, *used* and *unused*, where used channels are part of the hopping sequence and unused channels are replaced in the hopping sequence by used channels in a pseudo-random way. This classification

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 1, Part A, Section 7.1, p. 258, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/. Additionally, Bluetooth-compatible devices can use pulse shaping to reduce intersymbol interference ("ISI"). BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 2, Part A, Section 3.2.1.3, p. 331, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

29. As discussed above, the digital audio spread spectrum receivers of the Accused Receiver Products are able to process the high-quality audio signals, which have frequency ranges of 20 Hz to 20 kHz.

30. Also, the digital audio spread spectrum receivers of the Accused Receiver Products necessarily include digital-to-analog converters ("DAC") to convert the digital information in the received audio signal to corresponding analog information in order to generate an audio output.

31. The Accused Receiver Products included one or more speakers that operated to reproduce the generated audio output. For example, Dell Pro WL5022 included one speaker in each of the left and right portions of the headphones. The one or more speakers of the Accused Receiver Products only reproduce audible audio content sent from the digital audio spread spectrum transmitter in a Bluetooth-compatible device "paired" with the respective Accused Receiver Product.

32. The digital audio spread spectrum receivers of the Accused Receiver Products use independent code division multiple access communication and the received unique user code to communicate only with the digital audio spread spectrum transmitter in a Bluetooth-compatible device "paired" with the respective Accused Receiver Product during a wireless connection. For example, the Bluetooth specification is based on a type of code-division multiple access ("CDMA") known as frequency hopping code division multiple access ("FH-CDMA"). *See, e.g.,*

Jaap Haartsen, IEEE 2000, page 8; Shehu Hassan Ayagi, *Performance Analysis of Bluetooth Network in the Presence of Wi-Fi System*, COMPUTER ENGINEERING AND INTELLIGENT SYSTEMS, Vol. 5, No. 9, 2014

33. The digital audio spread spectrum receivers of the Accused Receiver Products demodulate received modulated transmissions in order to generate a demodulated signal and the demodulation includes at least one of a differential phase shift keying ("DPSK") demodulation and a non-DPSK demodulation.

Acronym or abbreviation	Writing out in full	Comments
DPSK	Differential Phase Shift Keying	Generic description of Enhanced Data Rate modulation

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 1, Part B, Acronyms and Abbreviations, p. 269, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

The general Enhanced Data Rate packet format is shown in Figure 1.3. Each packet consists of 6 entities: the access code, the header, the guard period, the synchronization sequence, the Enhanced Data Rate payload and the trailer. The access code and header use the same modulation mode as for Basic Rate packets while the synchronization sequence, the Enhanced Data Rate payload and the trailer use the Enhanced Data Rate modulation mode. The guard time allows for the transition between the modulation modes.

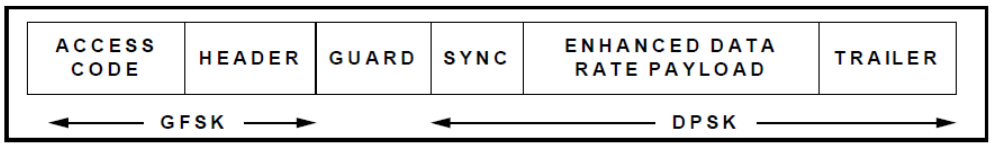


Figure 1.3: Standard Enhanced Data Rate packet format

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 2, Part B, Baseband Specification, p. 355, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

34. The Accused Receiver Products include Wi-Fi Direct-compatible products that comprise a portable or mobile digital audio spread spectrum audio receiver.

35. The receivers of the Accused Receiver Products receive a unique user code, e.g., unique "friendly name", from a digital audio spread spectrum transmitter during, e.g., device discovery, pairing, and/or audio streaming.

> **3.1 P2P discovery**
>
> **3.1.1 Introduction**
>
> P2P Discovery enables P2P Devices to quickly find each other and form a connection.
>
> P2P Discovery consists of the following major components:
>
> — **Device Discovery** facilitates two P2P Devices arriving on a common channel and exchanging device information (e.g. device name and device type).

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 24.

> Device Discovery (and optional Service Discovery) is intended to determine which P2P Devices may attempt to connect. Device selection may be based on non-unique information, e.g. Device Name, which potentially introduces ambiguity in this process. P2P Device manufacturers should attempt to create unique Device Names and user interfaces that maximize the probability of selecting the correct device, but there will be cases where device selection is non-deterministic. Group Formation uses the authentication provided by Wi-Fi Simple Configuration [2] to determine that the correct devices are connected. Group Formation may need to be executed more than once with different P2P devices to resolve the case of multiple devices with the same Device Name.

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 38.

Table 29—Device Info attribute format

Field Name	Size (octets)	Value	Description
Device Name	variable	As defined in [2]	Friendly name of the P2P Device. Contains the entire WSC Device Name attribute in TLV format (see [2]). Note — Byte ordering within the Device Name field shall be big-endian.

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 94.

Table 31—P2P Client Info Descriptor format

Field Name	Size (octets)	Value	Description
Device Name	variable	As defined in [2]	Friendly name of the P2P Client. Contains the entire WSC Device Name attribute in TLV format (see [2]). Note — Byte ordering within the Device Name field shall be big-endian.

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 95-96.

For example, a unique user code is sent by the transmitter in a P2P Information Element ("P2P IE").

> A P2P Device shall include the WSC IE in all transmitted Beacon, Probe Request and Response frames. Both the Device Name and Primary Device Type are required attributes in the WSC IE. The Secondary Device Type List is an optional attribute in the WSC IE. The inclusion of the WSC IE in the Probe Response frame sent by a P2P Device allows it to advertise human-readable device-specific information. It should be noted that this information is openly advertised.

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 54.

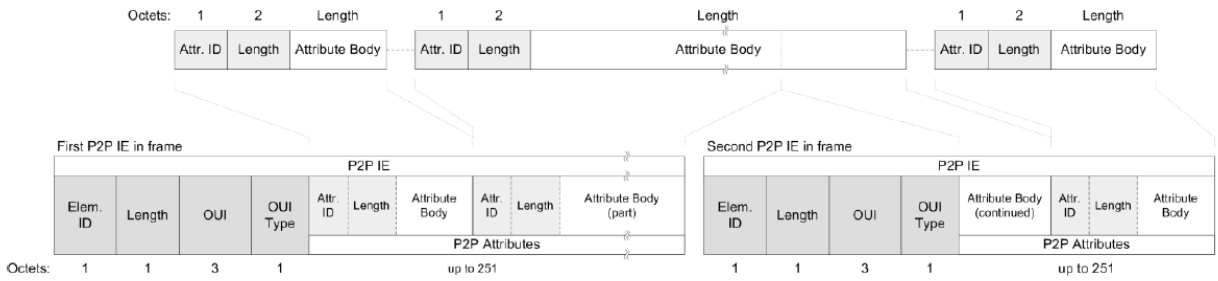
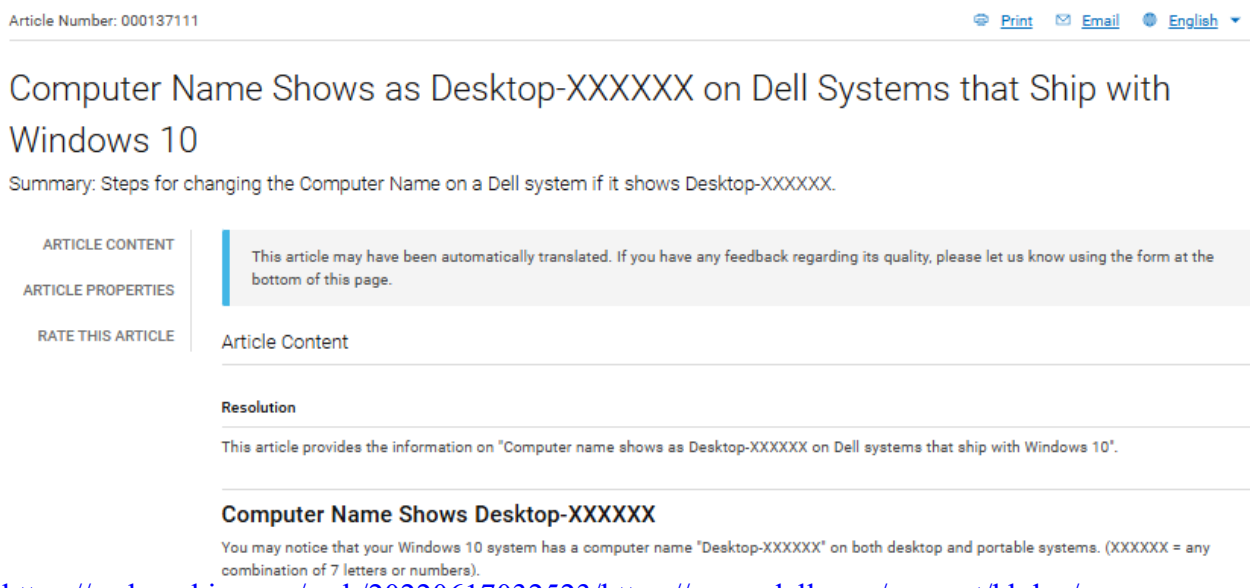


Figure 19—Example of P2P attributes carried in two P2P IEs

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 81.

36. Users of a Wi-Fi Direct-compatible transmitter and of Accused Receiver Products could personalize or customize the friendly name of the Wi-Fi Direct-compatible device, for example as mentioned below in the context of a proprietary Windows 10 interface on a Dell computer.



Article Number: 000137111

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ARTICLE CONTENT

ARTICLE PROPERTIES

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Article Content

Resolution

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https://web.archive.org/web/20220617032523/https://www.dell.com/support/kbdoc/en-us/000137111/computer-name-shows-as-desktop-xxxxxx-on-dell-systems-that-ship-with-windows-10

37. The digital audio spread spectrum receivers of the Accused Receiver Products also receive a high-quality audio signal representation with a frequency range of 20 Hz to 20kHz (i.e., the range of sound frequencies that the average human can hear high quality music) from another Wi-Fi Direct-compatible device with a digital audio spread spectrum transmitter.

38. Further, the receivers of the Accused Receiver Products are able to communicate wirelessly with digital audio spread spectrum transmitters and receive audio signal representations representative of audio from an audio source, e.g., audio or music streamed from a Wi-Fi Direct-compatible computer to an Accused Receiver Product via a direct Wi-Fi connection between the two devices.

Introduction

The Dell Wireless Monitor enables your laptop computer, Tablet & Mobile Phone devices to display your screen image via WiFi Direct interface. When you connect the Laptop, Tablet & Mobile Phone to the Dell Wireless Monitor, you can access the mouse & keyboard connected to the Monitor to control the Compute device (Laptop, Tablet or Mobile Phone).

Dell S2317HWi Monitor User's Guide, p.5
https://dl.dell.com/manuals/all-products/esuprt_display_projector/esuprt_display/dell-s2317hwi-monitor_user%27s%20guide_en-us.pdf

Wireless Specifications

Model	S2317HWi
Processor	Qualcomm Octa-core
Standard	802.11 ac
Frequency Band	2.4 GHz, 5 GHz - Concurrent
Connectivity	WiFi Direct, Screencast
Security	WPA, WPA2
Content DRM	HDCP 2.2

Dell S2317HWi Monitor User's Guide, p.15
https://dl.dell.com/manuals/all-products/esuprt_display_projector/esuprt_display/dell-s2317hwi-monitor_user%27s%20guide_en-us.pdf

Dell Support, *How to Connect a Wireless Monitor Windows 10 (Official Dell Tech Support)*, YouTube (June 2, 2011) https://www.youtube.com/watch?v=kXBwdWp7sFM

Dell Support, *How to Connect a Wireless Monitor Windows 10 (Official Dell Tech Support)*, YouTube (June 2, 2011) https://www.youtube.com/watch?v=kXBwdWp7sFM

39. The digital audio spread spectrum receivers of the Accused Receiver Products include direct conversion modules that can receive wireless spread spectrum signal transmissions representative of the unique user code and the high-quality audio signal representation. For example, on information and belief, all Wi-Fi Direct-compatible devices include a direct conversion module comprising down conversion circuity. Additionally, the received transmissions are encoded for further noise immunity. For example, the received transmissions can be encoded using various spread spectrum techniques to avoid interference, one such spread spectrum technique used is Direct Sequence Spread Spectrum ("DSSS") which is used in, at least, the 802.11b and 802.11g standards for wireless communication:

IEEE 802.11 PHY Standards			
Standard	Frequency Band (GHz)	Bandwidth (MHz)	Modulation
802.11	2.4 GHz	20 MHz	DSSS, FHSS
802.11b	2.4 GHz	20 MHz	DSSS
802.11a	5 GHz	20 MHz	OFDM
802.11g	20 MHz	2.4 GHz	DSSS, OFDM

https://www.tek.com/en/documents/primer/wi-fi-overview-80211-physical-layer-and-transmitter-measurements. Additionally, the Accused Receiver Products encode the received transmissions to reduce intersymbol interference ("ISI"), at least by utilizing pulse shaping in 802.11b and 802.11g to reduce ISI.

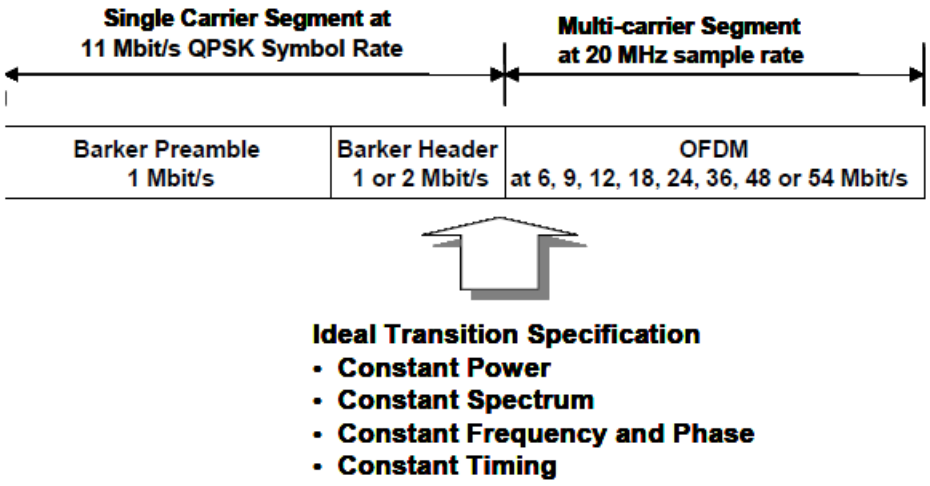


Figure 153G—Single carrier to multicarrier transition definition

19.7.2.1 Spectral binding requirement

The spectral binding requirement allows the receiver's estimate of the channel state information to be transferred from the single-carrier packet segment to the multicarrier packet segment. This requirement establishes a coherent relationship between the end-to-end frequency responses of the single carrier and multicarrier segments.

During reception of the single carrier preamble and header, the receiver may estimate the channel impulse response. In practice, this could be accomplished through Barker code correlation. The channel impulse response contains end-to-end frequency response information about the linear distortion experienced by the signal due to filters and multipath. This distortion can be mitigated with an equalizer or other commonly known techniques.

The channel impulse response estimate generated during the single carrier packet segment will include the single carrier's pulse-shaping, filter frequency response used to control the single carrier's transmit spectrum and transmit impulse response. The single carrier's pulse-shaping filter may be distinct from the shaping technique used for the multicarrier segment.

The spectral binding requirement states that the linear distortions experienced by the single carrier signal and the linear distortions experienced by the multicarrier signal have a known relationship. This relationship is defined by this specification and shall be manifested by all compliant transmit radios. This will allow any receiver to exploit channel information derived during the single carrier segment and reuse the channel information during the multicarrier segment, if desired.

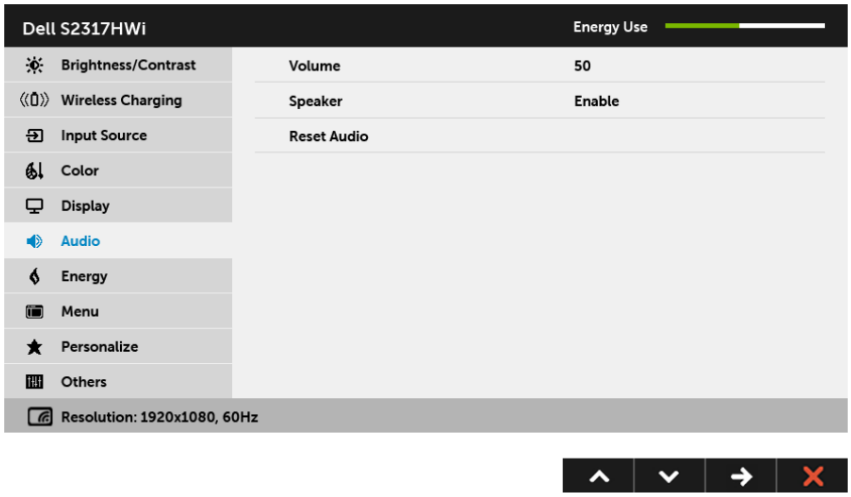
Three elements have been itemized for this specification to achieve spectral binding. All three elements are necessary to achieve spectral binding, and they are discussed in the next three subclauses. The first element focuses on distortions common to both the single carrier packet segment and the multicarrier packet segment. The second element deals with pulse-shaping unique to the OFDM packet segment. The third element deals with pulse-shaping unique to the single carrier packet segment. The multicarrier pulse shape discussion precedes the single carrier's pulse shape discussion because it is believed this will be a more comfortable progression, due to similar multicarrier pulse-shaping considerations contained in Clause 17.

IEEE COMPUTER SOCIETY, *IEEE Std 802.11g Amendment 4: Further Higher Data Rate Extension in the 2.4 GHz Band*, p. 32.

40. As discussed above, the digital audio spread spectrum receivers of the Accused Receiver Products are able to process the high quality audio signals, which have frequency ranges of 20 Hz to 20 kHz.

41. Also, the digital audio spread spectrum receivers of the Accused Receiver Products necessarily include digital-to-analog converters ("DAC") to convert the digital information in the received audio signal to corresponding analog information in order to generate an audio output.

Audio



Volume	Allows you to set the volume level of speakers. Use ^ or v to adjust the volume level from 0 to 100.
Speaker	Allows you to enable or disable the speaker function.

Dell S2317HWi Monitor User's Guide, p.15
https://dl.dell.com/manuals/all-products/esuprt_display_projector/esuprt_display/dell-s2317hwi-monitor_user%27s%20guide_en-us.pdf

42. The Accused Receiver Products include one or more speakers that operate to reproduce the generated audio output. For example, Dell's S2317HWi monitor includes a pair of speakers for audio playback.

Speaker Specifications

Model	S2317HWi
Speaker rated power	2 x 3 W
Frequency Response	200 Hz - 20 kHz
Impedance	8 ohm

Dell S2317HWi Monitor User's Guide, p.15
https://dl.dell.com/manuals/all-products/esuprt_display_projector/esuprt_display/dell-s2317hwi-monitor_user%27s%20guide_en-us.pdf

The one or more speakers of the Accused Receiver Products only reproduce audible audio content sent from the digital audio spread spectrum transmitter in a Wi-Fi Direct-compatible device "paired" with the respective Accused Receiver Product.

43. The digital audio spread spectrum receivers of the Accused Receiver Products use independent code division multiple access communication—e.g., an ad hoc wireless network, where devices communicate directly using a code to separate signals and do so without centralized control—and the received unique user code to communicate only with the digital audio spread spectrum transmitter in a Wi-Fi Direct-compatible device "paired" with the respective Accused Receiver Product during a wireless connection. For example, 802.11b can utilize DSSS and 802.11g can utilize DSSS and/or OFDM, so a multiplexing technique with a DSSS code separating signals can be used. As another example, the unique user code (e.g. unique friendly name, a UTF-8 encoding) is used to separate signals.

A P2P Group has a single SSID and provides one security domain.

Figure 2 illustrates a 1:1 topology, which is a subset of P2P 1:n topology (n=1).

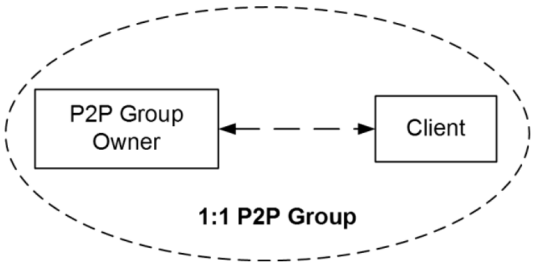


Figure 2—A subset of P2P 1:n topology (n=1)

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 20.

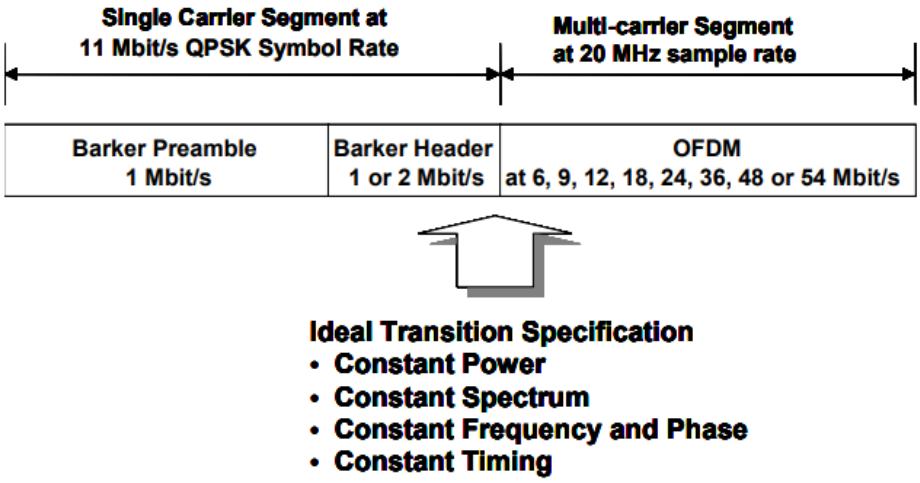


Figure 153G—Single carrier to multicarrier transition definition

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC., *IEEE Std 802.11g-2003 (Amendment to IEEE Std 802.11, 1999 Edition, as amended by IEEE Stds 802.11a-1999, 802.11b-1999, 802.11b-1999/Cor 1-2001, and 802.11d-2001), IEEE Standard for Information Technology—Telecommunications and Information Exchange between Systems—Local and Metropolitan Area Networks—Specific Requirements—Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications—Amendment 4: Further Higher Data Rate Extension in the 2.4 GHz Band.*, p. 32.

44. The digital audio spread spectrum receivers of the Accused Receiver Products demodulate received modulated transmissions in order to generate a demodulated signal and the demodulation includes at least one of a differential phase shift keying ("DPSK") demodulation

and a non-DPSK demodulation. For example, shown below are examples of two carriers utilized in Wi-Fi Direct: DSSS employing DPSK and DPSK that is used to demodulate.

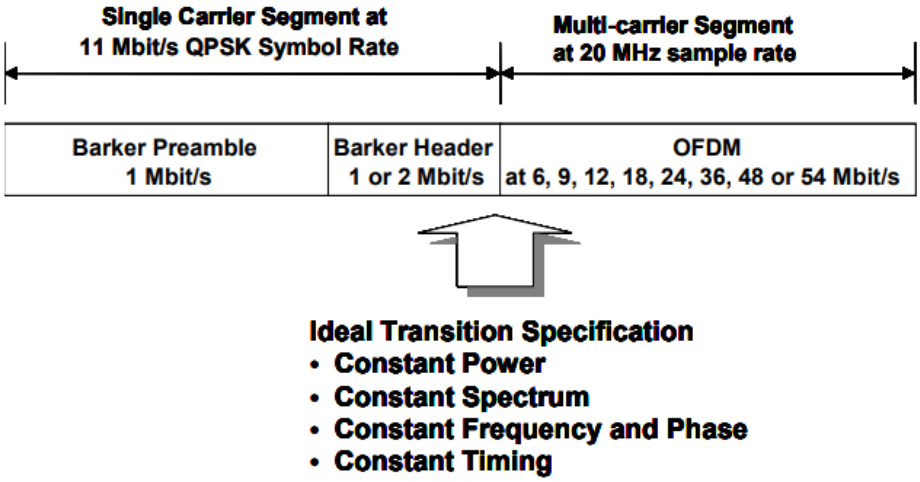


Figure 153G—Single carrier to multicarrier transition definition

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC., *IEEE Std 802.11g-2003 (Amendment to IEEE Std 802.11, 1999 Edition, as amended by IEEE Stds 802.11a-1999, 802.11b-1999, 802.11b-1999/Cor 1-2001, and 802.11d-2001), IEEE Standard for Information Technology—Telecommunications and Information Exchange between Systems—Local and Metropolitan Area Networks—Specific Requirements—Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications—Amendment 4: Further Higher Data Rate Extension in the 2.4 GHz Band.*, p. 32.

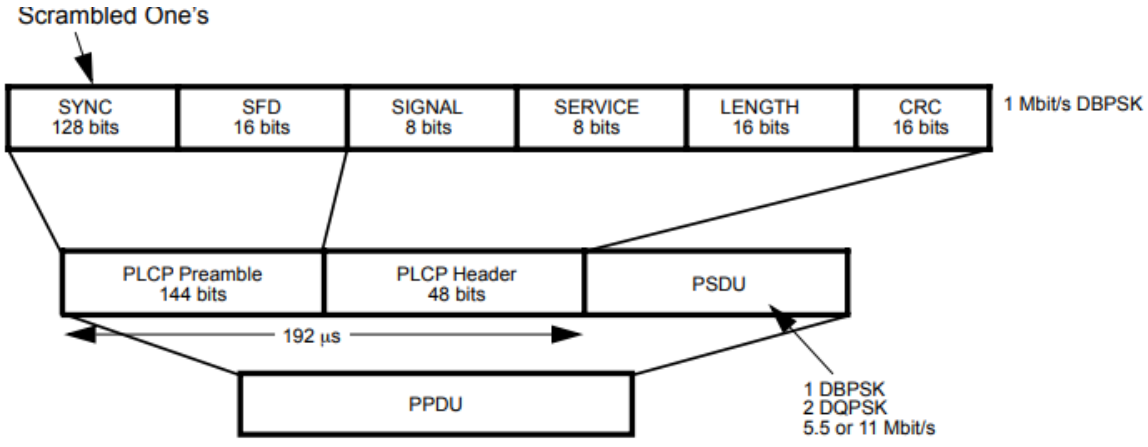


Figure 127—Long PLCP PPDU format

18.2.2.2 Short PLCP PPDU format (optional)

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC , *IEEE STD 802.11B-1999, SUPPLEMENT TO IEEE STANDARD FOR INFORMATION TECHNOLOGY—TELECOMMUNICATIONS AND INFORMATION EXCHANGE BETWEEN SYSTEMS—LOCAL AND METROPOLITAN AREA NETWORKS—SPECIFIC REQUIREMENTS—PART 11: WIRELESS LAN MEDIUM ACCESS CONTROL (MAC) AND PHYSICAL LAYER (PHY) SPECIFICATIONS: HIGHER-SPEED PHYSICAL LAYER EXTENSION IN THE 2.4 GHZ BAND,* p. 13.

45. During the Period of Exclusivity, Dell manufactured, used, sold, offered to sell, and imported into the United States portable, mobile, and other wireless audio products that transmit a wireless audio signal in accordance with versions of the Bluetooth and/or 802.11/Wi-Fi Direct standards (the "Accused Transmitter Products"), including, but not limited to:

- Tablets, including the "Dell Latitude" line of tablets and those with a Windows 10 operating system;
- Computer systems, including the "Dell Latitude" line of laptops and those with a Windows 10 operating system.

The Accused Transmitter Products meet all claim limitations of at least claim 17 of the '047 Patent, at least claim 5 of the '627 Patent, and at least claim 8 of the '000 Patent and thus Dell's manufacture, use, sale, offer for sale, and importation into the United States of the Accused Receiver Products infringes at least claim 17 of the '047 Patent, at least claim 5 of the '627 Patent, and at least claim 8 of the '000 Patent.

46. The Accused Transmitter Products include Bluetooth-compatible products that comprise a portable, mobile, or other digital audio spread spectrum audio transmitter.

47. The transmitters of the Accused Transmitter Products transmit a unique user code, e.g., BD_ADDR and unique user-friendly name ("UFN"), to a digital audio spread spectrum receiver during, e.g., device discovery, pairing, and/or audio streaming.

3.2.2 Bluetooth Device Name (the user-friendly name)

3.2.2.1 *Definition*

The Bluetooth device name is the user-friendly name that a Bluetooth device exposes to remote devices. For a device supporting the BR/EDR device type, the name is a character string returned in the LMP_name_res in response to

> an LMP_name_req. For a device supporting the LE-only device type, the name is a character string held in the Device Name characteristic as defined in Section 12.1.

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 3, Part C, Section 3.2.2, p. 1988, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/; *see also id.*, Section 6, pp. 2022-30; Section 7.1-7.7, pp. 2031-38 (discussing protocols for obtaining the BD_ADDR and UFN); Vol. 2, Part E, Section 6.23, p. 749 ("The user-friendly Local Name provides the user the ability to distinguish one BR/EDR Controller from another."); *id.*, Part B, Section 1.2.1, p. 357 (discussing a "user BD_ADDR"). For example, a unique user code is sent by the transmitter in response to the "Remote_Name_Request" command.

7.1.19 Remote Name Request Command

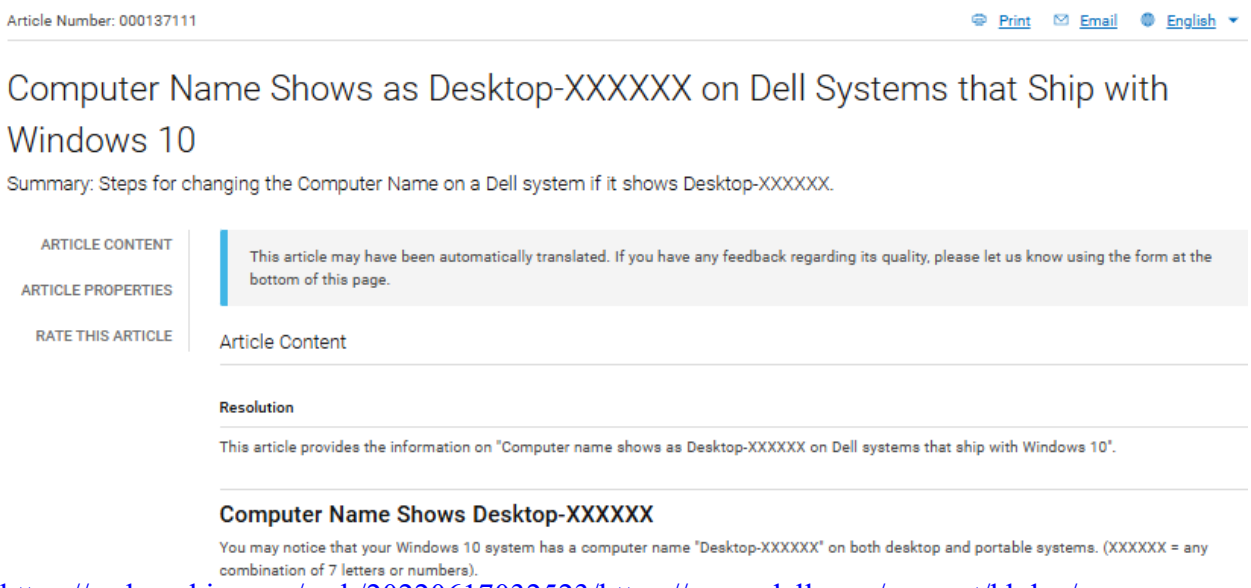
Command	OCF	Command Parameters	Return Parameters
HCI_Remote_Name_Request	0x0019	BD_ADDR, Page_Scan_Repetition_Mode, Reserved, Clock_Offset	

Description:

The Remote_Name_Request command is used to obtain the user-friendly name of another BR/EDR Controller. The user-friendly name is used to enable the user to distinguish one BR/EDR Controller from another. The BD_ADDR command parameter is used to identify the device for which the user-friendly name is to be obtained. The Page_Scan_Repetition_Mode parameter specifies the page scan repetition mode supported by the remote device with the BD_ADDR. This is the information that was acquired during the inquiry process. The Clock Offset parameter is the difference between its own clock

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 2, Part E, Section 7.1.19, p. 800, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

48. Users of a Bluetooth-compatible receiver and of the Accused Transmitter Products could personalize or customize the UFN of the Bluetooth-compatible device, for example by using the proprietary Windows 10 interface on a Dell computer.



Article Number: 000137111

Print Email English

Computer Name Shows as Desktop-XXXXXX on Dell Systems that Ship with Windows 10

Summary: Steps for changing the Computer Name on a Dell system if it shows Desktop-XXXXXX.

ARTICLE CONTENT

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Article Content

Resolution

This article provides the information on "Computer name shows as Desktop-XXXXXX on Dell systems that ship with Windows 10".

Computer Name Shows Desktop-XXXXXX

You may notice that your Windows 10 system has a computer name "Desktop-XXXXXX" on both desktop and portable systems. (XXXXXX = any combination of 7 letters or numbers).

https://web.archive.org/web/20220617032523/https://www.dell.com/support/kbdoc/en-us/000137111/computer-name-shows-as-desktop-xxxxxx-on-dell-systems-that-ship-with-windows-10.

49. The spread spectrum audio transmitters of the Accused Transmitter Products also transmit audio signal representations with a frequency range of 20 Hz to 20kHz (i.e., the range of sound frequencies that the average human can hear high-quality music) to another Bluetooth-compatible device with a digital audio spread spectrum receiver.

50. Further, the transmitters of the Accused Transmitter Products are able to communicate wirelessly with digital audio spread spectrum receivers, e.g., transmitting music from an Accused Transmitter Product to a Bluetooth-compatible receiver via a Bluetooth connection between the two devices and can be moved during operation.

51. The digital audio spread spectrum transmitters of the Accused Transmitter Products include encoders that can process signals in the 20 Hz to 20 kHz frequency range and encode a representation of the audio signal in order to reduce interference associated with communicating the transmitted representation of the audio signal. For example, the transmitted representations are

encoded using various spread spectrum techniques to avoid interference, one such spread spectrum technique used is adaptive frequency hopping ("AFH"):

> **7.2 ADAPTIVE FREQUENCY HOPPING**
>
> Adaptive Frequency Hopping (AFH) allows Bluetooth devices to improve their immunity to interference from and avoid causing interference to other devices in the 2.4 GHz ISM band. The basic principle is that Bluetooth channels are classified into two categories, *used* and *unused*, where used channels are part of the hopping sequence and unused channels are replaced in the hopping sequence by used channels in a pseudo-random way. This classification

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 1, Part A, Section 7.1, p. 258, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/. Additionally, Bluetooth-compatible devices can use pulse shaping to reduce intersymbol interference ("ISI"). BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 2, Part A, Section 3.2.1.3, p. 331, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

52. Separate from the encoding and processing by the encoder, the digital coded audio spread spectrum transmitters of the Accused Transmitter Products perform a modulation on the representation of the audio signal, using at least one of a differential phase shift keying ("DPSK") modulation and a non-DPSK modulation, and generate a modulated signal based on the performance of the modulation(s).

Acronym or abbreviation	Writing out in full	Comments
DPSK	Differential Phase Shift Keying	Generic description of Enhanced Data Rate modulation

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 1, Part B, Acronyms and Abbreviations, p. 269, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

The general Enhanced Data Rate packet format is shown in Figure 1.3. Each packet consists of 6 entities: the access code, the header, the guard period, the synchronization sequence, the Enhanced Data Rate payload and the trailer. The access code and header use the same modulation mode as for Basic Rate packets while the synchronization sequence, the Enhanced Data Rate payload and the trailer use the Enhanced Data Rate modulation mode. The guard time allows for the transition between the modulation modes.

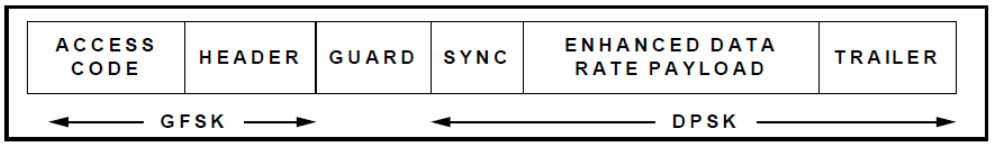


Figure 1.3: Standard Enhanced Data Rate packet format

BLUETOOTH CORE SPECIFICATION, Version 5.0 Vol. 2, Part B, Baseband Specification, p. 355, available at https://www.bluetooth.com/specifications/specs/core-specification-amended-5-0/.

53. The wireless digital coded audio spread spectrum transmitters of the Accused Transmitter Products use the modulated signal and independent code division multiple access communication to wirelessly transmit a representation of the audio signal. For example, the Bluetooth specification is based on a type of code-division multiple access ("CDMA") known as frequency hopping code division multiple access ("FH-CDMA"). *See, e.g.,* Jaap Haartsen, IEEE 2000, page 8; Shehu Hassan Ayagi, *Performance Analysis of Bluetooth Network in the Presence of Wi-Fi System*, COMPUTER ENGINEERING AND INTELLIGENT SYSTEMS, Vol. 5, No. 9, 2014. Further, the unique user code transmitted by the wireless digital coded audio spread spectrum transmitters of the Accused Transmitter Products distinguishes the audio signal representation transmitted by the corresponding transmitter from other transmitted audio signals that may be present in the spread spectrum transmitter spectrum. For example, a Bluetooth-compatible device "paired" with a respective Accused Transmitter Product will use the unique user code to ignore other audio signal representations that may be present in its vicinity.

54. The Accused Transmitter Products include Wi-Fi Direct-compatible products that comprise a portable, mobile, or other digital audio spread spectrum audio transmitter.

55. The transmitters of the Accused Transmitter Products transmit a unique user code, e.g., unique "friendly name," to a digital audio spread spectrum receiver during, e.g., device discovery, pairing, and/or audio streaming.

> **3.1 P2P discovery**
>
> **3.1.1 Introduction**
>
> P2P Discovery enables P2P Devices to quickly find each other and form a connection.
>
> P2P Discovery consists of the following major components:
>
> — **Device Discovery** facilitates two P2P Devices arriving on a common channel and exchanging device information (e.g. device name and device type).

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 24.

> Device Discovery (and optional Service Discovery) is intended to determine which P2P Devices may attempt to connect. Device selection may be based on non-unique information, e.g. Device Name, which potentially introduces ambiguity in this process. P2P Device manufacturers should attempt to create unique Device Names and user interfaces that maximize the probability of selecting the correct device, but there will be cases where device selection is non-deterministic. Group Formation uses the authentication provided by Wi-Fi Simple Configuration [2] to determine that the correct devices are connected. Group Formation may need to be executed more than once with different P2P devices to resolve the case of multiple devices with the same Device Name.

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 38.

Table 29—Device Info attribute format

Field Name	Size (octets)	Value	Description
Device Name	variable	As defined in [2]	Friendly name of the P2P Device. Contains the entire WSC Device Name attribute in TLV format (see [2]). Note — Byte ordering within the Device Name field shall be big-endian.

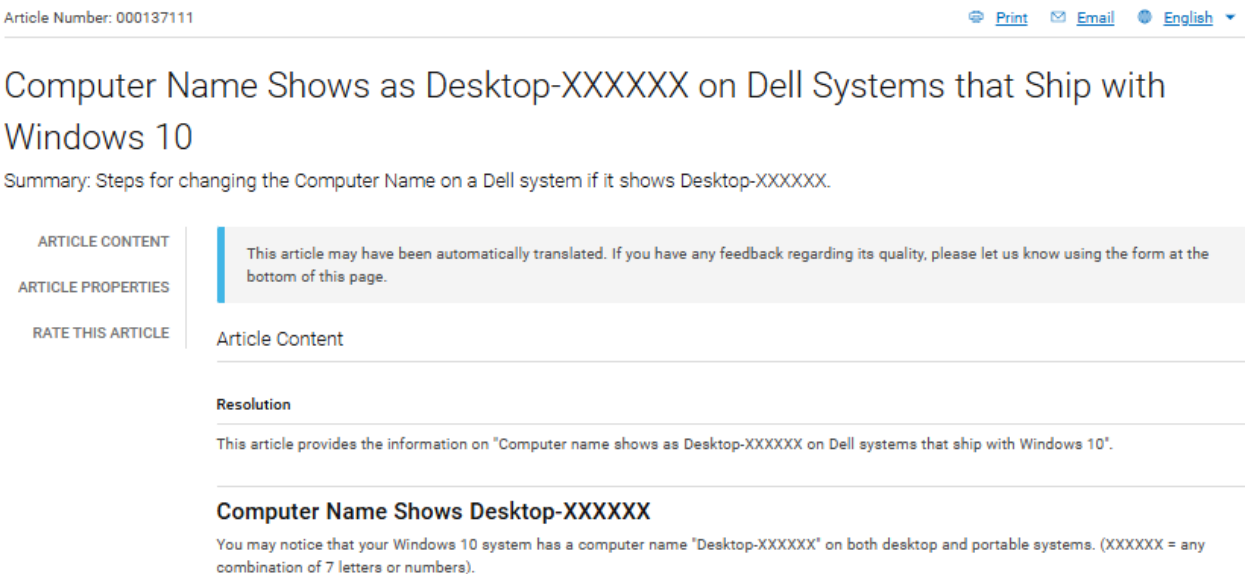
WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 94.

Table 31—P2P Client Info Descriptor format

Field Name	Size (octets)	Value	Description
Device Name	variable	As defined in [2]	Friendly name of the P2P Client. Contains the entire WSC Device Name attribute in TLV format (see [2]). Note — Byte ordering within the Device Name field shall be big-endian.

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 95-96.

56. Users of a Wi-Fi Direct-compatible receiver and of the Accused Transmitter Products could personalize or customize the unique "friendly name" of the Wi-Fi Direct-compatible device, for example as mentioned below in the context of a proprietary Windows 10 interface on a Dell computer.



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https://web.archive.org/web/20220617032523/https://www.dell.com/support/kbdoc/en-us/000137111/computer-name-shows-as-desktop-xxxxxx-on-dell-systems-that-ship-with-windows-10.

57. The spread spectrum audio transmitters of the Accused Transmitter Products also transmit audio signal representations with a frequency range of 20 Hz to 20 kHz (e.g, the range of sound frequencies that the average human can hear high-quality music) to another Wi-Fi Direct-compatible device with a digital audio spread spectrum receiver.

58. Further, the transmitters of the Accused Transmitter Products are able to communicate wirelessly with digital audio spread spectrum receivers, e.g., transmitting music

from an Accused Transmitter Product to a Wi-Fi Direct-compatible receiver via a Wi-Fi Direct connection between the two devices, and can be moved during operation.

Dell Support, *How to Connect a Wireless Monitor Windows 10 (Official Dell Tech Support)*, YouTube (June 2, 2011) https://www.youtube.com/watch?v=kXBwdWp7sFM

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59. The digital audio spread spectrum transmitters of the Accused Transmitter Products include encoders that can process signals in the 20 Hz to 20 kHz frequency range and encode a representation of the audio signal in order to reduce interference associated with communicating the transmitted representation of the audio signal. For example, the associated transmissions of the

representations are encoded using various techniques; such techniques include pulse shaping in 802.11b and 802.11g which reduce ISI.

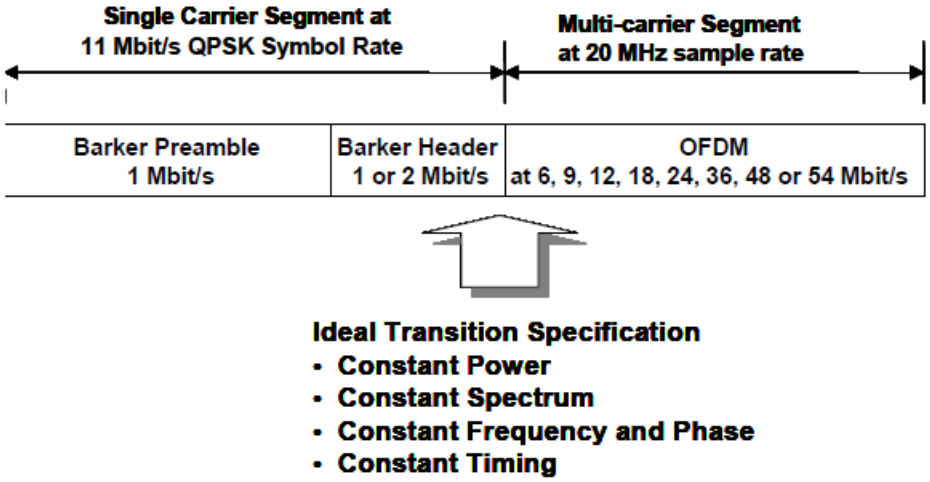


Figure 153G—Single carrier to multicarrier transition definition

19.7.2.1 Spectral binding requirement

The spectral binding requirement allows the receiver's estimate of the channel state information to be transferred from the single-carrier packet segment to the multicarrier packet segment. This requirement establishes a coherent relationship between the end-to-end frequency responses of the single carrier and multicarrier segments.

During reception of the single carrier preamble and header, the receiver may estimate the channel impulse response. In practice, this could be accomplished through Barker code correlation. The channel impulse response contains end-to-end frequency response information about the linear distortion experienced by the signal due to filters and multipath. This distortion can be mitigated with an equalizer or other commonly known techniques.

The channel impulse response estimate generated during the single carrier packet segment will include the single carrier's pulse-shaping, filter frequency response used to control the single carrier's transmit spectrum and transmit impulse response. The single carrier's pulse-shaping filter may be distinct from the shaping technique used for the multicarrier segment.

The spectral binding requirement states that the linear distortions experienced by the single carrier signal and the linear distortions experienced by the multicarrier signal have a known relationship. This relationship is defined by this specification and shall be manifested by all compliant transmit radios. This will allow any receiver to exploit channel information derived during the single carrier segment and reuse the channel information during the multicarrier segment, if desired.

Three elements have been itemized for this specification to achieve spectral binding. All three elements are necessary to achieve spectral binding, and they are discussed in the next three subclauses. The first element focuses on distortions common to both the single carrier packet segment and the multicarrier packet segment. The second element deals with pulse-shaping unique to the OFDM packet segment. The third element deals with pulse-shaping unique to the single carrier packet segment. The multicarrier pulse shape discussion precedes the single carrier's pulse shape discussion because it is believed this will be a more comfortable progression, due to similar multicarrier pulse-shaping considerations contained in Clause 17.

IEEE COMPUTER SOCIETY, IEEE Std 802.11g Amendment 4: Further Higher Data Rate Extension in the 2.4 GHz Band, p. 32.

60. Separate from the encoding and processing by the encoder, the digital coded audio spread spectrum transmitters of the Accused Transmitter Products perform a modulation on the representation of the audio signal, using at least one of a differential phase shift keying ("DPSK") modulation and a non-DPSK modulation, and generate a modulated signal based on the performance of the modulation(s).

> **2.4.1 Basic functions and services**
>
> This specification assumes that all the STA functions and services to pass the following WFA Certifications are implemented in P2P Devices:
>
> — WFA certification for at least 802.11g, which includes WPA2

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 21.

> In order to promote efficient wireless medium use:
>
> — P2P Devices shall not use 11b rates (1, 2, 5.5, 11 Mbps) for data and management frames except:
>
> ▪ Probe Request frames sent to both P2P Devices and non-P2P Devices.
>
> — P2P Devices shall not respond to Probe Request frames that indicate support for 11b rates only.

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 21.

7.3 Management frame body components

7.3.1 Fixed fields

7.3.1.4 Capability Information field

Change the first and second paragraphs in 7.3.1.4 as shown:

The Capability Information field contains a number of subfields that are used to indicate requested or advertised optional capabilities.

The length of the Capability Information field is 2 octets. The Capability Information field consists of the following subfields: ESS, IBSS, CF-Pollable, CF-Poll Request, Privacy, Short Preamble, Packet Binary Convolutional Code (PBCC), ~~and~~ Channel Agility, Short Slot Time, and DSSS-OFDM. The format of the Capability Information field is illustrated in Figure 27. No subfield is supplied for ERP as a STA supports ERP operation if it includes all of the Clause 19 mandatory rates in its supported rate set.

Replace Figure 27 with the following:

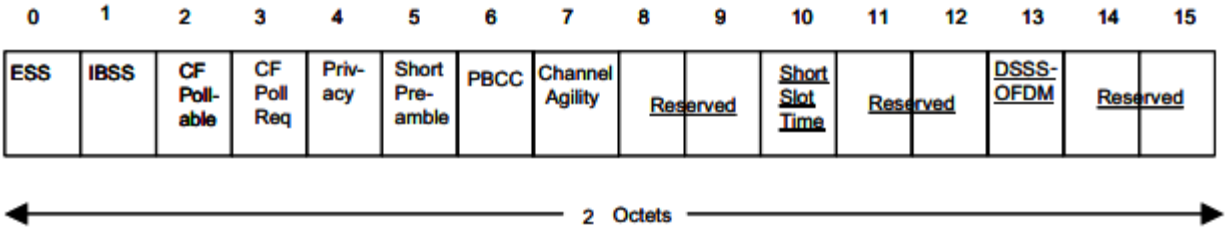


Figure 27—Capability Information fixed field

WI-FI ALLIANCE, Wi-Fi Peer-to-Peer (P2P) Technical Specification, version 1.5, p. 21.

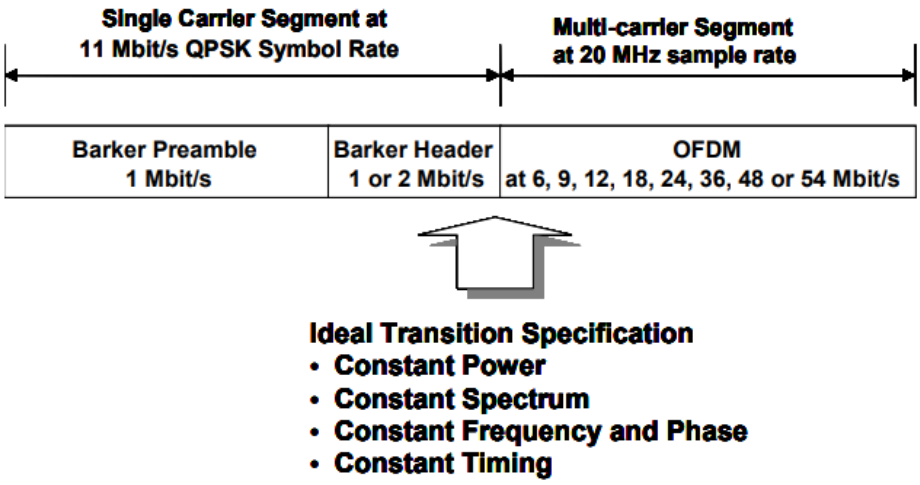


Figure 153G—Single carrier to multicarrier transition definition

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC., *IEEE Std 802.11g-2003 (Amendment to IEEE Std 802.11, 1999 Edition, as amended by IEEE Stds 802.11a-1999, 802.11b-1999, 802.11b-1999/Cor 1-2001, and 802.11d-2001), IEEE Standard for Information Technology—Telecommunications and Information Exchange between Systems—Local and Metropolitan Area Networks—Specific Requirements—Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications—Amendment 4: Further Higher Data Rate Extension in the 2.4 GHz Band.*, p. 32.

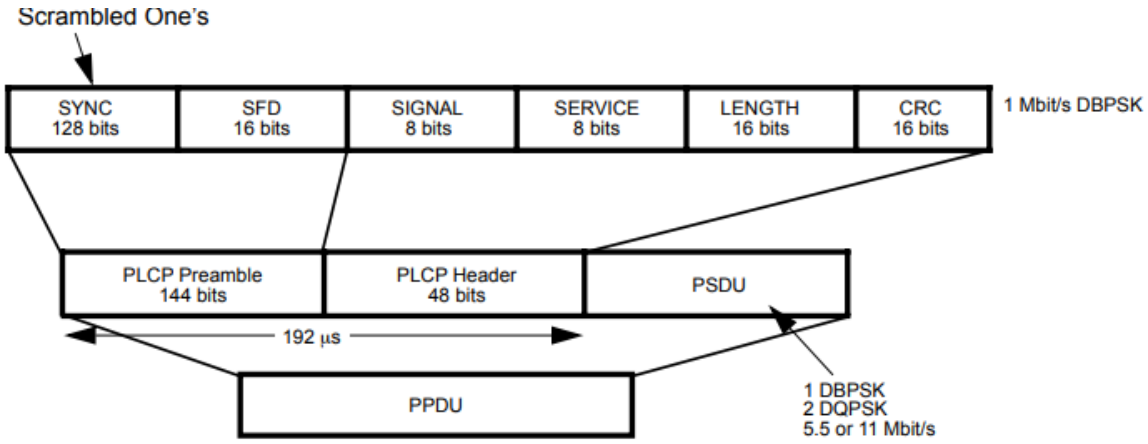


Figure 127—Long PLCP PPDU format

18.2.2.2 Short PLCP PPDU format (optional)

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC , *IEEE STD 802.11B-1999, SUPPLEMENT TO IEEE STANDARD FOR INFORMATION TECHNOLOGY—TELECOMMUNICATIONS AND INFORMATION EXCHANGE BETWEEN SYSTEMS—LOCAL AND METROPOLITAN AREA NETWORKS—SPECIFIC REQUIREMENTS—PART 11: WIRELESS LAN MEDIUM ACCESS CONTROL (MAC) AND PHYSICAL LAYER (PHY) SPECIFICATIONS: HIGHER-SPEED PHYSICAL LAYER EXTENSION IN THE 2.4 GHZ BAND,* p. 13.

61. The wireless digital coded audio spread spectrum transmitters of the Accused Transmitter Products use the modulated signal and independent code division multiple access communication—e.g., an ad hoc wireless network, where devices communicate directly using a code to separate signals and do so without centralized control—to wirelessly transmit a representation of the audio signal. For example, 802.11b can utilize DSSS and 802.11g can utilize DSSS and/or OFDM, so a multiplexing technique with a DSSS code separating signals can be used.

A P2P Group has a single SSID and provides one security domain.
Figure 2 illustrates a 1:1 topology, which is a subset of P2P 1:n topology (n=1).

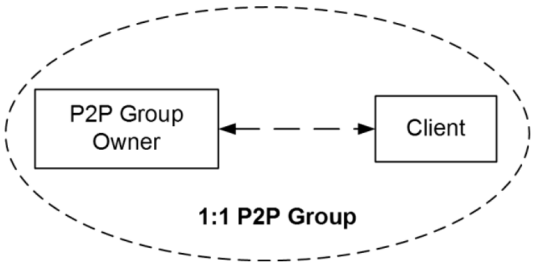


Figure 2—A subset of P2P 1:n topology (n=1)

WI-FI ALLIANCE, *Wi-Fi Peer-to-Peer (P2P) Technical Specification*, version 1.5, p. 20.

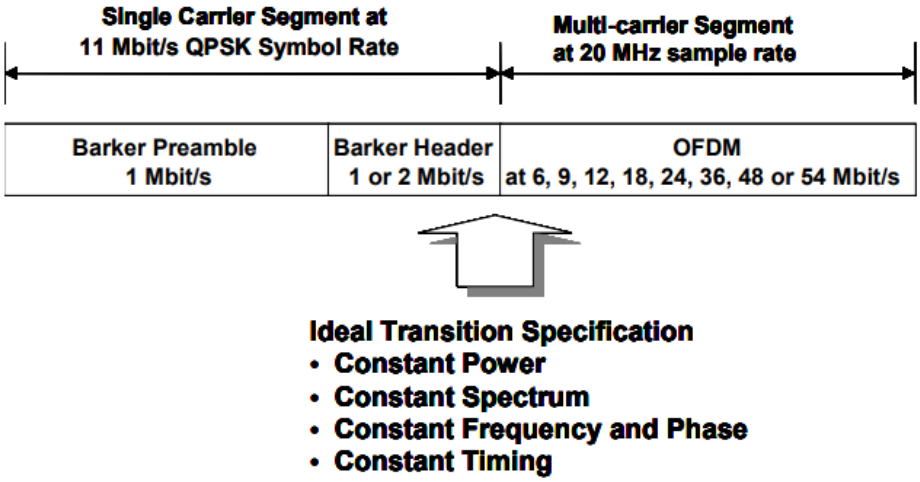
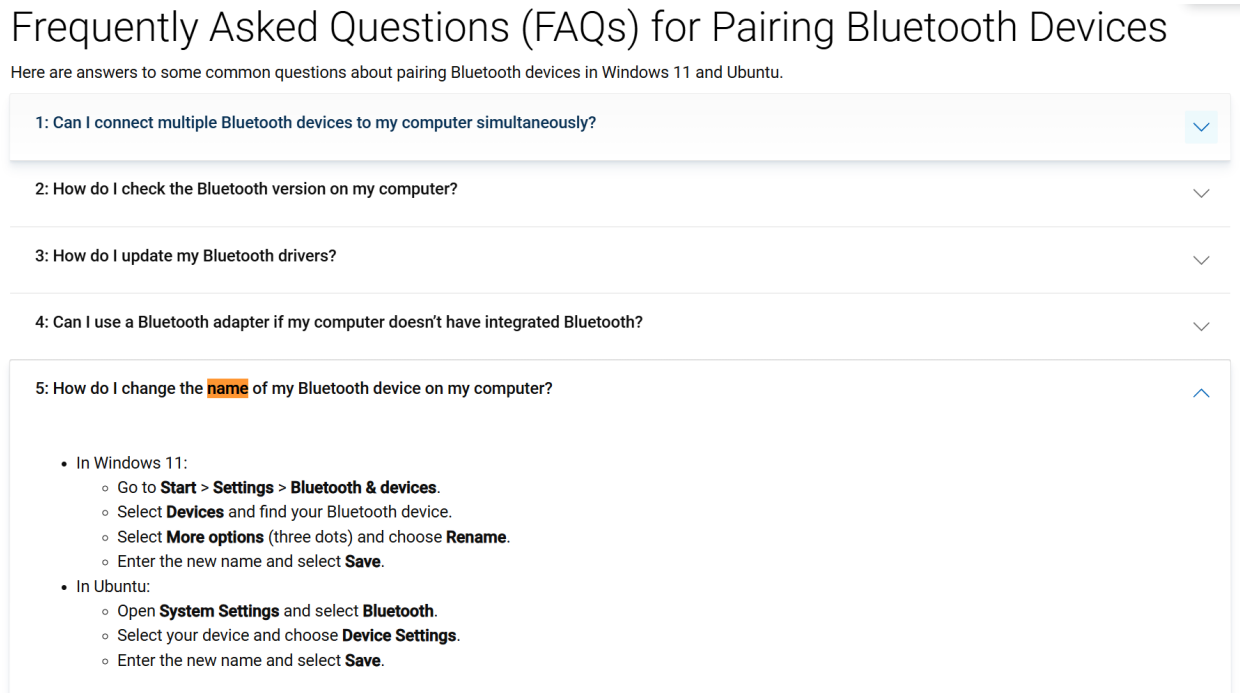


Figure 153G—Single carrier to multicarrier transition definition

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC., *IEEE Std 802.11g-2003 (Amendment to IEEE Std 802.11, 1999 Edition, as amended by IEEE Stds 802.11a-1999, 802.11b-1999, 802.11b-1999/Cor 1-2001, and 802.11d-2001), IEEE Standard for Information Technology—Telecommunications and Information Exchange between Systems—Local and Metropolitan Area Networks—Specific Requirements—Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications—Amendment 4: Further Higher Data Rate Extension in the 2.4 GHz Band.*, p. 32

As another example, the unique user code (e.g. unique friendly name, a UTF-8 encoding) is used to separate signals. Further, the unique user code transmitted by the wireless digital coded audio spread spectrum transmitters of the Accused Transmitter Products distinguishes the audio signal representation transmitted by the corresponding transmitter from other transmitted audio signals that may be present in the spread spectrum transmitter spectrum.

62. Dell provided instructions to its customers and users on how to pair the Accused Receiver Products and Accused Transmitter Products with other Bluetooth-compatible and Wi-Fi Direct-compatible products in order to wirelessly send and receive audio signal representations and unique user codes as claimed in the Patents-in-Suit.



Frequently Asked Questions (FAQs) for Pairing Bluetooth Devices

Here are answers to some common questions about pairing Bluetooth devices in Windows 11 and Ubuntu.

1: Can I connect multiple Bluetooth devices to my computer simultaneously?

2: How do I check the Bluetooth version on my computer?

3: How do I update my Bluetooth drivers?

4: Can I use a Bluetooth adapter if my computer doesn't have integrated Bluetooth?

5: How do I change the name of my Bluetooth device on my computer?

- In Windows 11:
  - Go to **Start** > **Settings** > **Bluetooth & devices**.
  - Select **Devices** and find your Bluetooth device.
  - Select **More options** (three dots) and choose **Rename**.
  - Enter the new name and select **Save**.
- In Ubuntu:
  - Open **System Settings** and select **Bluetooth**.
  - Select your device and choose **Device Settings**.
  - Enter the new name and select **Save**.

https://www.dell.com/support/contents/en-us/article/product-support/self-support-knowledgebase/networking-wifi-and-bluetooth/pair-bluetooth-devices-windows-

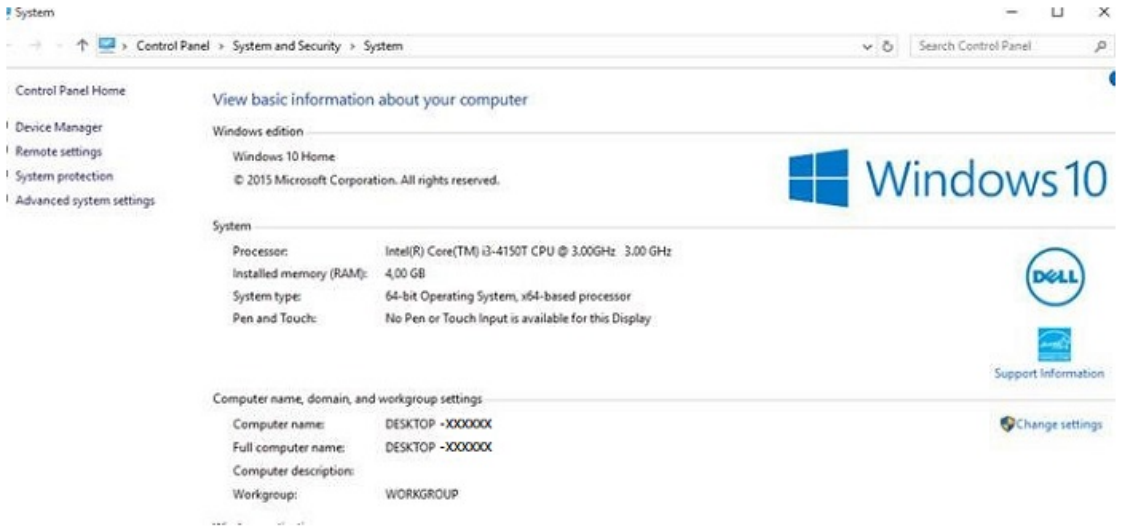
ubuntu#:~:text=Open%20System%20Settings%20and%20select,new%20name%20and%20select%20Save.

Computer Name Shows as Desktop-XXXXXX on Dell Systems that Ship with Windows 10

Summary: Steps for changing the Computer Name on a Dell system if it shows Desktop-XXXXXX.

Computer Name Shows Desktop-XXXXXX

You may notice that your Windows 10 system has a computer name "Desktop-XXXXXX" on both desktop and portable systems. (XXXXXX = any combination of 7 letters or numbers).



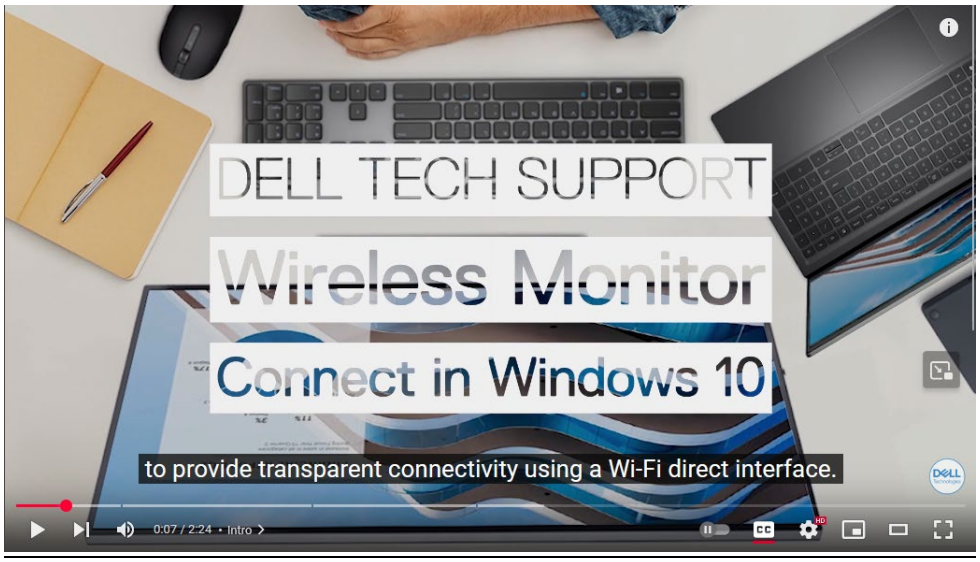
How to Change the Computer Name

You have several options that will allow you to change the computer name of a Windows 10 system.

From the Start menu

1. Click/Tap **Settings** on the **Start** menu, The **Settings Window** will open.
2. Click/Tap the **System** icon, (top left).
3. Click/Tap **About** at the bottom of the left side menu.
4. Then Click/Tap the **Rename PC** button
5. In the **Rename your PC Window**, type in the new name in the box then Click/Tap **Next** and Click/Tap the **Restart Now** button.

https://web.archive.org/web/20220617032523/https://www.dell.com/support/kbdoc/en-us/000137111/computer-name-shows-as-desktop-xxxxxx-on-dell-systems-that-ship-with-windows-10 (last published date February 21, 2021).



Dell Support, *How to Connect a Wireless Monitor Windows 10 (Official Dell Tech Support)*, YouTube (June 2, 2011) https://www.youtube.com/watch?v=kXBwdWp7sFM

Connecting the Monitor via Screencast or Screen Mirror

To wirelessly connect the monitor with your computer, click the link below of the operating system (OS) you are using to see more details.

- Using Windows® 10
- Using Windows® 8.1
- Using Windows® 7

To wirelessly connect the monitor with an Android device, you may use either the Settings menu on the device or Dell Wireless Monitor app, downloaded from Google Play store. Click the link below to see more details.

- Using Settings on an Android™ Smartphone
- Using Dell Wireless Monitor App on an Android™ Smartphone

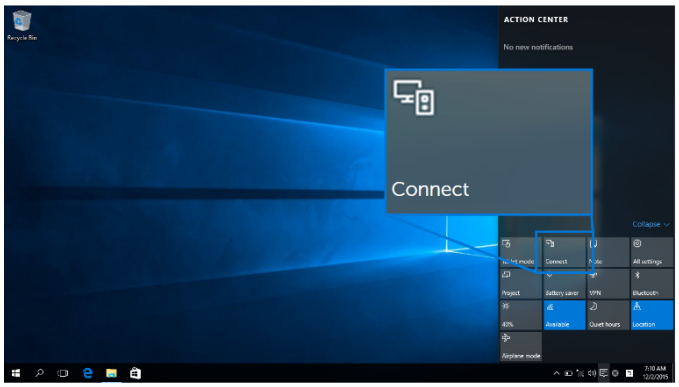
NOTE: The environment surrounding the monitor and the computer may affect transmission signal and compromise signal strength. Avoid placing objects between the monitor and the connecting device that may interfere with the normal wireless operations.

Using Windows® 10

NOTE: The illustrations below are for reference only and may differ from your actual computer screen based on the settings, version, and the language of your operating system.

Connecting to a Device

1 Select **Connect** from the Action Center.



Dell S2317HWi Monitor User's Guide, p. 46
https://dl.dell.com/manuals/all-products/esuprt_display_projector/esuprt_display/dell-s2317hwi-monitor_user%27s%20guide_en-us.pdf

63. On information and belief, Defendants also implemented contractual controls and protections in the form of license and use restrictions with their customers to preclude the unauthorized reproduction, distribution, and modification of their products.

64. Moreover, on information and belief, Defendants implemented technical precautions to attempt to thwart customers who would circumvent the intended operation of Defendants' products.

NOTICE

65. Dell received notice of its infringement of the Patents-in-Suit via its receipt of a certified letter from One-E-Way dated April 10, 2020. As stated in the letter, the purpose of the April 10, 2020 certified letter was "to address infringement of One-E-Way's patents by initiating a patent licensing discussion with the aim of avoiding patent infringement litigation." The April 10, 2020 letter to Dell explained, in part, that the One-E-Way patents are "directed to wireless audio devices that transmit and/or receive data suitable for high-quality music," and Dell's "conduct of making, offering and selling these wireless computer products in the United States constitutes infringement of One-E-Way's patents, namely the '885, '258, '391, '000, '396, '627 and '047 Patents."

66. One-E-Way has complied with the requirements of 35 U.S.C §287 with respect to each of the Patents-in-Suit.

67. Given Dell's knowledge of the Patents-in-Suit, Dell knew or was willfully blind to the fact that its products infringed the Patents-in-Suit.

IV. PATENT INFRINGEMENT

COUNT I — INFRINGEMENT OF U.S. PATENT NO. 10,129,627

68. One-E-Way incorporates by reference the foregoing paragraphs as if fully set forth herein.

69. Dell has directly infringed and has induced or contributed to the infringement of at least claims 1 and 5 of the '627 Patent in this judicial district and elsewhere in the United States

by, among other things, having made, imported, used, offered for sale, and/or sold without authority of license the claimed systems of the '627 Patent.

70. The infringing products include the Accused Receiver Products and the Accused Transmitter Products. One-E-Way alleges that each and every element is literally present in the Accused Receiver Products and/or the Accused Transmitter Products. To the extent not literally present, One-E-Way reserves the right to proceed under the doctrine of equivalents.

71. Dell has also actively induced the infringement of the '627 Patent under 35 U.S.C. § 271(b) by customers and other users. With knowledge of the '627 Patent (at least as of the date of its receipt of the April 2020 letter), Dell actively directed and aided its customers regarding how to use the Accused Receiver Products and the Accused Transmitter Products in an infringing manner and did so with the intent to encourage its customers and users to directly infringe the '627 Patent. This direction and aid came from Dell's provision of the Accused Receiver Products and the Accused Transmitter Products along with software, guides, manuals, tutorials, and other documentation and instruction (including, by way of example, information located that was at https://www.dell.com/support/home/en-us, as described above). Dell's direction and aid was further found in the firmware and source code embedded in the Accused Receiver Products and the Accused Transmitter Products that directed and executed the direct infringement of the '627 Patent.

72. Dell has also contributed to the infringement of one or more claims of the '627 Patent under 35 U.S.C. § 271(c) and/or 271(f), either literally and/or under the doctrine of equivalents, by having sold, offered for sale, and/or imported into the United States, the Accused Receiver Products, and the Accused Transmitter Products. Dell knew that the components of the Accused Receiver Products and the Accused Transmitter Products: constituted a material part of

the inventions claimed in the ’627 Patent; were especially made or adapted to infringe the ’627 Patent; and were not staple articles or commodities of commerce suitable for non-infringing use, but rather the components were used for or in systems that infringe one or more claims of the ’627 Patent. The hardware and/or software components were not a staple article or commodity of commerce because they were specifically designed to perform the claimed functionality. These products were specifically designed for their infringing purpose, namely operating as part of a wireless digital audio system to wirelessly transmit and/or receive representations of an audio signal between corresponding transmitters and receivers, in part, via the use of a unique user code in accordance with the claims of the ’627 Patent. Any other use of the hardware and/or software components would have been unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental.

73. One-E-Way has been damaged as a result of Dell’s infringing conduct. Dell is thus liable to One-E-Way in an amount that adequately compensates it for Dell’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II — INFRINGEMENT OF U.S. PATENT NO. 10,468,047

74. One-E-Way incorporates by reference the foregoing paragraphs as if fully set forth herein.

75. Dell has directly infringed and has induced or contributed to the infringement of at least claims 1 and 17 of the ’047 Patent in this judicial district and elsewhere in the United States by, among other things having made, imported, used, offered for sale, and/or sold without authority of license the claimed systems of the ’047 Patent.

76. The infringing products include the Accused Receiver Products and the Accused Transmitter Products. One-E-Way alleges that each and every element is literally present in the Accused Receiver Products and/or the Accused Transmitter Products. To the extent not literally present, One-E-Way reserves the right to proceed under the doctrine of equivalents.

77. Dell has also actively induced the infringement of the '047 Patent under 35 U.S.C. § 271(b) by customers and other users. With knowledge of the '047 Patent (at least as of the date of its receipt of the April 2020 letter), Dell actively directed and aided its customers regarding how to use the Accused Receiver Products and the Accused Transmitter Products in an infringing manner and did so with the intent to encourage its customers and users to directly infringe the '047 Patent. This direction and aid came from Dell's provision of the Accused Receiver Products and the Accused Transmitter Products along with software, guides, manuals, tutorials, and other documentation and instruction (including, by way of example, information that was located at https://www.dell.com/support/home/en-us, as described above). Dell's direction and aid can was further found in the firmware and source code embedded in the Accused Receiver Products and the Accused Transmitter Products that directed and executed the direct infringement of the '047 Patent.

78. Dell has also contributed to the infringement of one or more claims of the '047 Patent under 35 U.S.C. § 271(c) and/or 271(f), either literally and/or under the doctrine of equivalents, by having sold, offered for sale, and/or imported into the United States, the Accused Receiver Products and the Accused Transmitter Products. Dell knew that the components of the Accused Receiver Products and the Accused Transmitter Products: constituted a material part of the inventions claimed in the '047 Patent; were especially made or adapted to infringe the '047 Patent; and were not staple articles or commodities of commerce suitable for non-infringing use,

but rather the components were used for or in systems that infringed one or more claims of the '047 Patent. The hardware and/or software components were not a staple article or commodity of commerce because they were specifically designed to perform the claimed functionality. These products were specifically designed for their infringing purpose, namely operating as part of a wireless digital audio system to wirelessly transmit and/or receive representations of an audio signal between corresponding transmitters and receivers, in part, via the use of a unique user code in accordance with the claims of the '047 Patent. Any other use of the hardware and/or software components would have been unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental.

79. One-E-Way has been damaged as a result of Dell's infringing conduct. Dell is thus liable to One-E-Way in an amount that adequately compensates it for Dell's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III — INFRINGEMENT OF U.S. PATENT NO. 9,107,000

80. One-E-Way incorporates by reference the foregoing paragraphs as if fully set forth herein.

81. Dell has directly infringed and has induced or contributed to the infringement of at least claim 8 by the Accused Transmitter Products and claim 9 by the Accused Receiver Products in this judicial district and elsewhere in the United States by, among other things having made, imported, used, offered for sale, and/or sold without authority of license the claimed systems of the '000 Patent.

82. The infringing products include the Accused Receiver Products and the Accused Transmitter Products. One-E-Way alleges that each and every element is literally present in the

Accused Receiver Products and/or the Accused Transmitter Products. To the extent not literally present, One-E-Way reserves the right to proceed under the doctrine of equivalents.

83. Dell has also actively induced the infringement of the ’000 Patent under 35 U.S.C. § 271(b) by customers and other users. With knowledge of the ’000 Patent (at least as of the date of its receipt of the April 2020 letter), Dell actively directed and aided its customers regarding how to use the Accused Receiver Products and the Accused Transmitter Products in an infringing manner and did so with the intent to encourage its customers and users to directly infringe the ’000 Patent. This direction and aid came from Dell’s provision of the Accused Receiver Products and the Accused Transmitter Products along with software, guides, manuals, tutorials, and other documentation and instruction (including, by way of example, information that was located at https://www.dell.com/support/home/en-us, as described above). Dell’s direction and aid was further found in the firmware and source code embedded in the Accused Receiver Products and the Accused Transmitter Products that directed and executed the direct infringement of the ’000 Patent.

84. Dell has also contributed to the infringement of one or more claims of the ’000 Patent under 35 U.S.C. § 271(c) and/or 271(f), either literally and/or under the doctrine of equivalents, by having sold, offered for sale, and/or imported into the United States, the Accused Receiver Products and the Accused Transmitter Products. Dell knew that the components of the Accused Receiver Products and the Accused Transmitter Products: constituted a material part of the inventions claimed in the ’000 Patent; were especially made or adapted to infringe the ’000 Patent; and were not staple articles or commodities of commerce suitable for non-infringing use, but rather the components were used for or in systems that infringed one or more claims of the ’000 Patent. The hardware and/or software components were not a staple article or commodity of

commerce because they were specifically designed to perform the claimed functionality. These products were specifically designed for their infringing purpose, namely operating as part of a wireless digital audio system to wirelessly transmit and/or receive representations of an audio signal between corresponding transmitters and receivers, in part, via the use of a unique user code in accordance with the claims of the '000 Patent. Any other use of the hardware and/or software components would have been unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental.

85. One-E-Way has been damaged as a result of Dell's infringing conduct. Dell is thus liable to One-E-Way in an amount that adequately compensates it for Dell's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

V. WILLFULNESS

86. Dell was provided notice of One-E-Way's claims at least by way of the April 2020 letter.

87. Dell acted with knowledge of the Patents-in-Suit despite an objectively high likelihood that its actions constituted infringement of One-E-Way's valid patent rights.

88. This objectively defined risk was either known or so obvious that it should have been known to Dell. One-E-Way seeks enhanced damages pursuant to 35 U.S.C. §284.

VI. JURY DEMAND

89. One-E-Way demands a trial by jury of all matters to which it is entitled to trial by jury, pursuant to FED. R. CIV. P. 38.

VII. PRAYER FOR RELIEF

90. WHEREFORE, Plaintiff One-E-Way prays for judgment and seeks relief against Defendants as follows:

a. Judgment that one or more claims of the Patents-in-Suit have been directly and/or indirectly infringed, either literally and/or under the doctrine of equivalents;

b. Award Plaintiff past damages together with prejudgment and post-judgment interest to compensate for the infringement by Dell of the Patents-in-Suit in accordance with 35 U.S.C. § 284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. § 284;

c. That the Court declare this an exceptional case and award Plaintiff its reasonable attorneys' fees and costs in accordance with 35 U.S.C. § 285; and

d. That Plaintiff be granted such other and further relief as the Court may deem just and proper under the circumstances.

Dated: June 25, 2025

Respectfully submitted,

/s/ Daniel L. Schmid
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Adam Price
Texas State Bar No. 24027750
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dschmid@dinovoprice.com

ATTORNEYS FOR PLAINTIFF ONE-E-WAY, INC.

CERTIFICATE OF SERVICE

I hereby certify that on June 25, 2025, the foregoing document was electronically filed with the Clerk of Court using the Court's CM/ECF system, which will send notification of such filing to all counsel of record who are deemed to have consented to electronic service.

/s/ Daniel L. Schmid
Daniel L. Schmid